EDITORIAL
DOMESTIC ENGINEERING

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PROFITS FOR FARMER AND PLUMBER IN WATER SUPPLY SYSTEMS.

THIS is the season of the year for the plumbing and heating contractor near the rural district to make special efforts to sell water systems. It is a time when the farmer sees the results of his year's efforts on the land and is planning how to spend all or part of his money. It is timely to say to plumbing and heating contractors: "Are you in touch with your farmer prospects? Have you mailed him the latest literature available on the system you are handling? Have you called on him lately to tell him the additional advantages of having a power driven water system?" These are questions that should bring a reply in the affirmative. However, if little effort has been spent in the rural districts, it is not too late to get busy now before the farmer decides to spend his money in other directions. Get yours while the getting is good.

Water System Makes Money for Farmer.

In selling the farmer, remember that he has something to gain more than comfort and convenience when he buys a water supply system. Tell him that he makes money when he installs it, and prove it in this way. Point out to the farmer the fact that milk cattle improve in yield and condition, especially in the winter time, in almost direct proportion to the extent to which they are provided with fresh drinking water at the proper temperature. Go on to state that the time spent by the farmer or his hired man in pumping and carrying water for live stock costs just as much as the time spent in cultivating corn, and could, with greater profit, be used in the latter way. Explain to the prospect that illness on the part of the farm help or the household costs money for medicines and medical attention, while also slowing the operation of the farm, is a source of expense which would largely be removed by proper water supply and sanitation. Point out that the fire danger is constantly over the farmer's head. In a few hours a conflagration will wipe out his entire plant. He can never be sure that a careless hired hand will not kick over a stable lantern, and cause a fire, so that it is a fine protection to have a constant supply of water under pressure to reduce this enormous hazard. State further that every minute of the time spent by the housewife or household help in carrying fresh water into the house or waste water out of it is just so much of their time withdrawn from other and profit-producing activities. This last is essentially true because there is hardly another line of business activity in which the household is such an integral part of the profit-producing machinery of the business. Bring the farmer's own intelligence to bear on the point that it is especially true of the man performing manual labor, that he invariably feels better, is better and can do more work in the same time, if he has access to unlimited bathing facilities. It should not be hard to prove to the farmer that if he had the means for himself and all of his field crew to enjoy a shower in the middle of the day, before eating, that they would all do more and better work that day and the next.

Reaching the Farmer's Pocketbook.

The things emphasized in the foregoing show a scheme of selling, calculated to introduce them to the farmer's attention along the lines of the easiest approach to his pocketbook. Many a farmer figures that some day, when he goes off the farm to retire, he will have all modern comforts and conveniences, but if you convince him that these things on the farm will actually help him a long way on the very road he wants to travel, you will find his own intelligence will help your sales argument along.

Agricultural implement manufacturers sell the farmer modern equipment on the basis that he can do more work with it and that it is money in his pocket to buy it. Automobile manufacturers emphasize that a car is a business asset, as well as a pleasure vehicle. Water supply systems can be sold in greater numbers if the contractor will bear in mind that the farmer is an apostle of thrift, a man in business for himself, and that an appeal to his business side will make the sale much easier.

INSANITARY PRIVIES *a* MENACE *to* RURAL WATER SUPPLIES

By Frank R. King, Plumbing and Domestic Sanitary Engineer, State Board of Health, Madison, Wis.

Editor's Note: By special arrangement with Frank R. King, plumbing and domestic sanitary engineer, State Board of Health, Madison, Wis., we present herewith the first of a series of articles on rural sanitation. Mr. King, for the past eight years, has been a progressive factor in sanitation in Wisconsin, and due to his efforts the state has a fine plumbing code and a comfort station law. His experience well qualifies him to discuss sanitation, and in this, the first article, he scores the insanitary privy. The next article will cover water supply and sewage disposal systems, and step by step, he will analyze conditions fully and make constructive recommendations of value to readers of "Domestic Engineering."

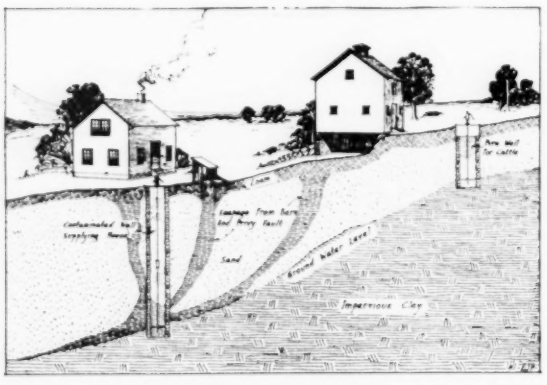
SAFEGUARDING our rural water supplies against pollution from privy vaults is a duty every good citizen owes to his family and the community. Investigations made in several states show that an alarming percentage of our shallow wells and springs are being polluted by seepage from either the barn yard, privy vault or cesspool. Dirt and drainage find their way into the well, due to defective tops or by means of surface or underground leaching (Figs. 1, 2, 3 and 4).

The location of the well is also important. Where possible it should be located on high ground, well removed from any source of possible pollution. In all cases of shallow wells it is extremely important that the surface water should drain away from the well; that a tight cover be provided, and that the waste from the pump be carried a safe distance from the well.

Drilled wells are less subject to pollution. It is important, however, that the casing be extended to the top and be connected to the pump by means of a water-tight joint.

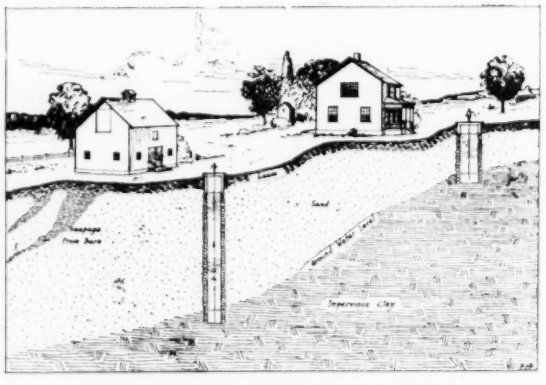
No abandoned well or other water supply should be used as a privy vault or cesspool. No privy vault, cesspool or private sewage disposal system should be so located that it endangers the safety of the water supply. Rural dwellers, health officers, architects, plumbers and builders should give this important factor careful attention, and when in doubt should communicate with the proper state or local authorities conversant with safety requirements and laws and regulations governing this matter.

No iron-clad rule can be laid down for the protection of shallow wells, springs, and in some instances drilled wells. Any soil full of seams, a porous rock or one full of crevices, or a very coarse gravel will, under certain favorable conditions, allow the contents of a vault or cesspool to leach with little or no purification into a well located as far as 500 feet from the source of its contamination.



BUILDINGS IMPROPERLY LOCATED
The natural drainage is toward the well not away from it. The top of the well is not protected from surface contamination

Fig. 1



BUILDINGS PROPERLY LOCATED IN RELATION TO WELLS
Showing natural underground drainage away from the wells, and the tops of the wells protected from surface pollution

Fig. 2.

Residential Privies.

It is universally recognized that the essentials of a sanitary privy are:

1. Proper design and location with respect to water supply, privacy and convenience.
2. Adequate vault capacity and proper construction and ventilation of the vault.
3. Proper light and ventilation of the shelter-house.
4. Proper use and upkeep.
5. Proper final disposal of vault contents.
6. It must be properly screened against flies.
7. It must be kept free from all kinds of marks and writing.

Summary of Other Important Sanitary Privy Essentials.

(Note: Provisions in italics apply especially to school or similar public privies.)

1. The privy should be located upon ground that is well drained and with the adjacent surface sloping from the building, and where there is absolutely no danger of con-

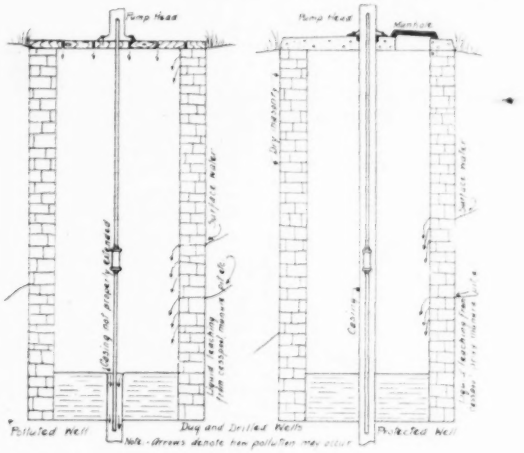


Fig. 3.

taminating the water supply used for drinking purposes. It should be provided, where necessary, with suitable approaches of concrete or gravel walks.

2. It should be advantageously located from the standpoint of convenience, privacy and sanitation, and afford a reasonable amount of protection from the weather for those using it. Where possible in cold climates the entrance to the privy should face the south.

3. It must be so designed and constructed that it can be kept reasonably clean and in a sanitary condition without too much labor. *A broom or service closet should be provided.*

4. The floors, seats and urinals should be scrubbed as often as occasion may require to prevent noxious odors, and to keep them clean and sanitary. *Experience has proven that*

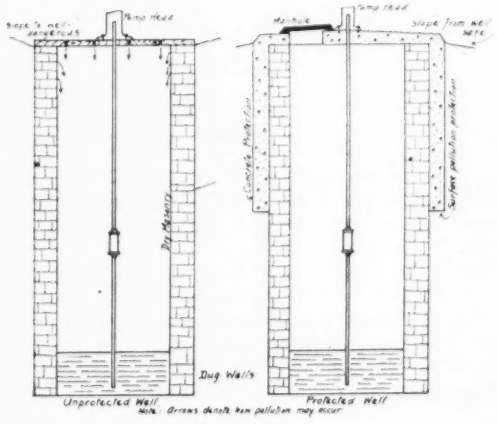


Fig. 4.

some person should be required to give the toilets for both sexes such attention at frequent intervals as may be needed to keep them clean. Daily inspection should be made by the teacher in charge.

5. The vault or pit should be as dark as possible, of adequate depth, and extended with suitable material, such as concrete or masonary work, at least 8 inches above the surface of the surrounding ground, so that small animals and vermin cannot have access to the excreta, and it must be fly proof.

6. The floor, base and risers in front of the seats should preferably be constructed of material other than wood,

Fig. 5.

which does not readily absorb moisture, such as concrete faced with rich cement, or other smooth non-absorbent material, which can be easily cleaned. When wood is used, it must be constructed in a workmanlike manner and kept well painted.

7. The doors must be properly designed, constructed and located, *be provided with an adequate self-closing device and a substantial lock and key,* and may swing either inward or outward.

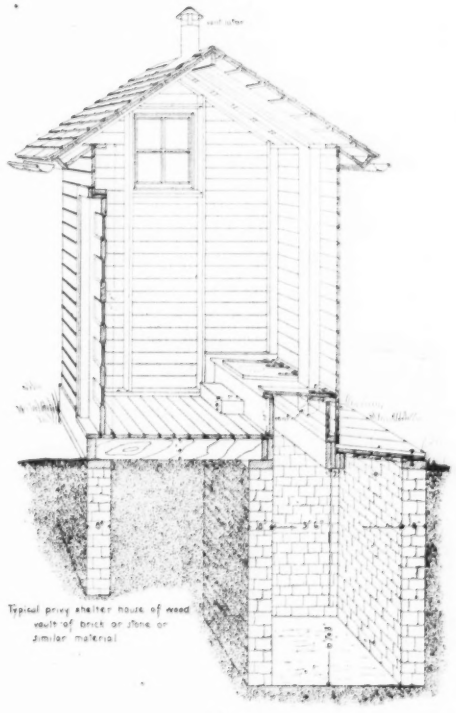


Fig. 6.

8. The windows should be located to give the best lighting and ventilation, hinged at the bottom to swing inward, provided with a latch lock and a chain at top, and be properly screened on the outside. These windows should be so constructed that they can be opened to give adequate ventilation to the room.

9. The window glass area for a privy containing one or two seats should be at least four square feet. *Two square feet must be added for each additional seat. Each 24 inches of urinal space should be counted the same as a seat.*

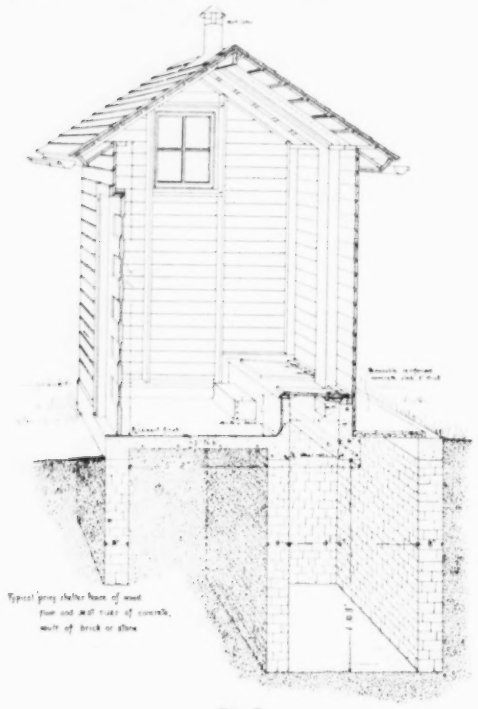
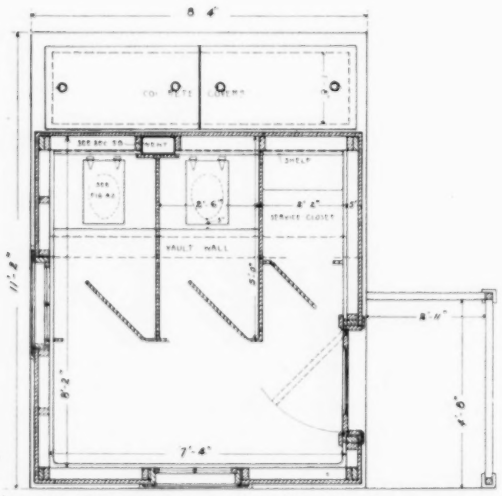


Fig. 7.

10. *Milk of lime (freshly slaked) or some other equally effective disinfectant must be used at least once a week during warm weather, applied to the vault through seat and urinal openings in sufficient quantities to disinfect and deodorize the contents.*



TYPICAL FLOOR PLAN OF A RURAL SCHOOL PRIVY FOR GIRLS

Fig. 8.

11. When the vault is filled to within one foot of the surface of the ground, and preferably sooner, it must be cleaned out and the contents disposed of in such a manner that it will not create a nuisance, or the shelter house moved to a new location and provided with a new vault.

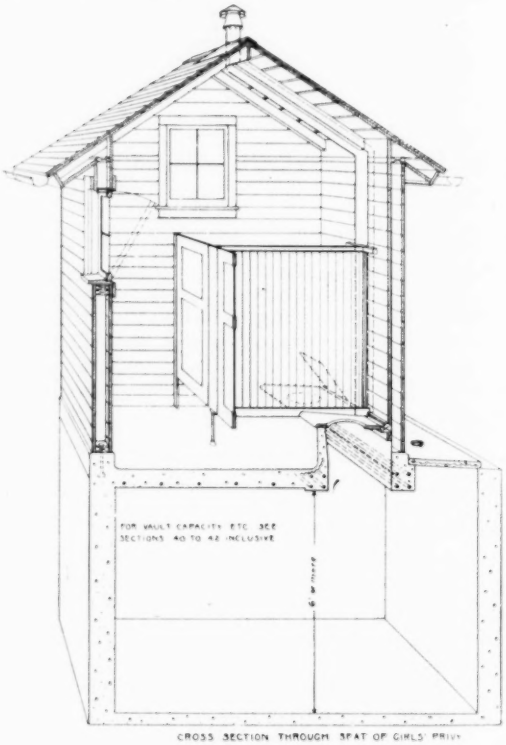
12. *All privies should be provided with signs of sufficient size to be easily read, designating the sex for which they are intended.*

13. Every privy should have at least 15 sq. ft. of floor area and at least 100 cu. ft. of air space for each seat *and for each 2 ft. of urinal space.*

14. Privies for the two sexes should be properly separated and located so as to insure privacy.

15. The footings and foundation walls should be of suitable materials, such as concrete, brick or stone masonry. Wood construction should conform with recognized standards. Steel should be used in all concrete work for reinforcing.

16. A ventilator extended from the vault through the roof should be provided. This ventilator should be equipped with siphon or a revolving hood to guard against downdrafts and promote ventilation.



CROSS SECTION THROUGH SEAT OF GIRLS' PRIVY

Fig. 9.

17. The interior walls and other exposed woodwork should be boarded with lumber dressed smooth on the exposed sides. Both exterior and interior must be well painted.

(Note: Figs. 5, 6 and 7 illustrate typical arrangement and construction of a high grade residential privy.)

Rural School Toilet Facilities.

The first essential in school sanitation, where running water and sewerage are not available, is provision for a sanitary privy for each sex. (Figs. 8 to 13, inclusive.) Poorly constructed or improperly maintained privies are not only a menace to the health of the pupil by increasing the danger of infection, but encourage the formation of irregular habits that are disastrous to the child's health.

It is a more dangerous error to suppose that the functions of elimination can be postponed or neglected with impunity. Chronic ailments that occur later in life are due directly to these conditions. Therefore, the school toilets must be maintained in a clean and sanitary condition to

encourage their use. This is a very important subject and has a direct bearing upon the life and future health of the pupils.

Children who attend schools, that are provided with sanitary toilets, also acquire an excellent idea of sanitation,

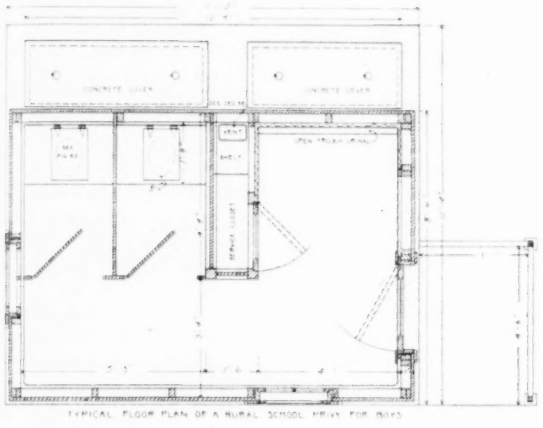


Fig. 10.

which is of great value to them throughout life. It is in this formative period of the child's life when the foundation for future health is laid by the formation of regular habits. What better inducements for acquiring such regular habits

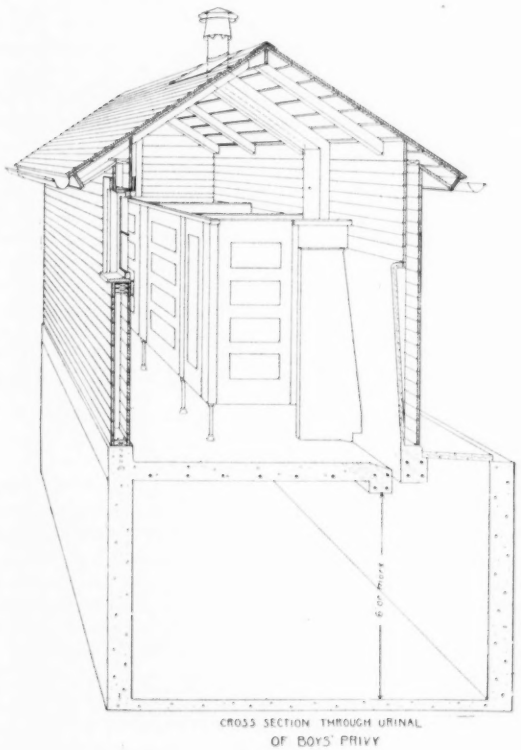


Fig. 11.

of cleanliness can the school offer than properly constructed and maintained toilets that can be used without discomfort?

As a part of the school discipline, pupils should be compelled to use toilets properly, and taught to take pride in maintaining them in a cleanly condition. A filthy toilet does not enhance the reputation of an otherwise clean and wholesome environment.

Such infections as typhoid fever, dysentery, tuberculosis and infantile paralysis are often increased by the spreading of human excreta through some of the following methods:

By water, through surface subsoil seepage.

By dirty hands and dirty clothing.

By flies and other insects.

By dirt carried indoors by the feet of man and animals.

Thus the proper disposal of human wastes is absolutely necessary for safeguarding the public health.

The selection of proper school toilet facilities is an important subject and embraces varied conditions such as the following:

1. The rural school, which may be so situated that, for the time being at least, it must depend on the outdoor privy

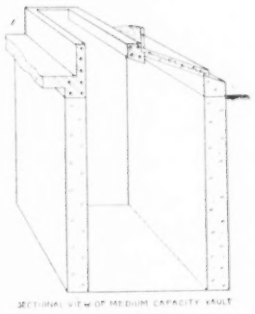


Fig. 12.

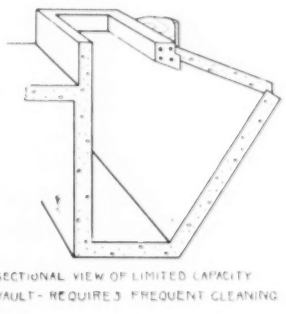


Fig. 13.

for toilet accommodations. For this type of school a sanitary privy or water-less toilet, so designed and constructed that it can be properly maintained and used without discomfort, should be provided.

2. The rural school not suited for water-flushed toilets, owing to adverse drainage and other conditions, but of proper arrangement and construction, may in some instances provide certain indoor "water-less toilets" of an approved type and so operate these as to make for a degree of service and sanitation. (It is understood, of course, that a privy or water-less toilet is not the equivalent of modern water-flushed toilets for school buildings, and of other conveniences in connection with schools, such as running water and drinking fountains, wash basins, etc. Their use, therefore, is limited to such places as those where public sewers are not available, or where a private water supply and disposal system or some other approved type of closet is for good reasons impractical.)

3. The rural school so situated that it is practicable to install modern water-flushed toilets and other conveniences may, where a public water supply or sewerage system is not available, install an efficient, durable and satisfactory water system of the "compressed air storage" or "direct from the well, air-pressure delivery" type, and may install a sewage treatment and disposal system, providing the character of the soil is such that the effluent from the system can successfully be disposed of by one of the variously known methods at a reasonable cost.

Leading Japanese labor organizations are planning a general meeting for the formation of a national labor association, with the aspirations, they say, of making themselves felt as a power similar to the American Federation of Labor. According to leaders of the movement, organization of labor in Japan has been impeded by the financial depression, many unions having collapsed through the failure of members to pay dues.

The A B C *of* SUCCESSFUL HEATING

Heat Losses from Buildings and Methods of Determining Them

By Frederick Grant

(Continued from Page 58 in the July 10th Issue.)

THE provision of a chimney of adequate height and area, as we have described, may be considered the first step of importance in the preparation for the installation of a heating apparatus.

In order to work out an answer to a problem the requirements must be known, and, likewise, to determine the size of the various parts of a heating apparatus it is necessary to know the requirements and the condition of the building to be heated. The determination of these facts may be considered the second important step in preparing to install a heating system.

If the building is an old one, it must be carefully measured, or if it is a new building yet to be constructed the plans should be carefully studied. In either case the cubical contents, the square feet of outside or exposed wall surface, the number and size of outside doors and windows, and other details of building construction which will affect the operation of the heating apparatus, must be carefully noted. In addition to determining these details, it is highly important that the character of the construction of the building be ascertained before making an estimate of the requirements. Particular attention should be paid to loose fitting windows and doors. The average person does not realize the amount of heat that is lost by reason of this condition. In making up an estimate of the amount of radiation required to warm a building it is usual to figure that the infiltration (inward leakage of cold air around doors and windows) will equal one and one-half times the cubical contents per hour for a building poorly constructed, or from one to one and one-quarter times the cubical contents for a well constructed building.

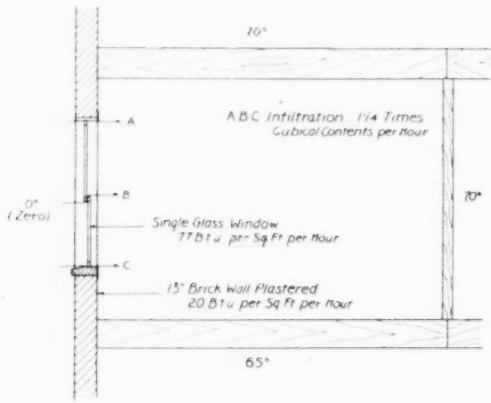

70°
A
A B C Infiltration 1½ Times Cubical Contents per Hour
B
0° (Zero)
70°
Single Glass Window 77 B t u per Sq Ft per Hour
C
13" Brick Wall Plastered 20 B t u per Sq Ft per Hour
65°

Fig. 1.

As an example showing the amount of heat lost in this manner suppose we consider the crevices around loose fitting windows and doors of an ordinary eight or ten-room house. We will say that the house in question has sixteen or eighteen windows of average size and three or four outside doors. Assume a clearance or space of one-eighth of an inch around each door and one-sixteenth of an inch around the window sash and across the window between the double sash. This space if combined into a single opening would equal the area of a round pipe eighteen or twenty inches in diameter. Consider the temperature of the outside air as being at zero and that it is constantly flowing into the house through this pipe, and we can realize somewhat the amount of heat that is lost in this manner. All windows and doors should be carefully fitted or weather stripped as a matter of economy, as well as to insure successful heating.

The size of the heating apparatus will depend upon the amount of heat required to make good the heat lost from the building. Heat is lost by leakage, as we have explained, and by filtering through windows and porous outside walls. Building material of all kinds is porous, some kinds having a greater cooling value than others. Heat is lost or disseminated by conduction, convection and by radiation, or in exactly the same manner that a radiator transmits heat to a room. Let us thoroughly understand this detail, as it forms the basis of all heat transference. We thrust a poker into the fire, and it soon becomes hot its entire length, although but a small portion of it has been in actual contact with the fire. This is heat transference by conduction. Water heated at the boiler and conducted through pipes to a storage tank or radiator heats by convection. Stand before a hot stove or radiator and feel the heat radiated from it. This is heating by radiation. In all of the above examples it will be noted that heat always passes from a warmer to a cooler body and never from a cooler to a warmer body. Fig. 1 will perhaps illustrate and show more clearly the loss or cooling of the heat by outside walls, windows and by infiltration. The arrows A, B and C indicate the loss by infiltration, and the heat loss per square foot per hour through wall and window are noted. It is assumed that the room illustrated adjoins other heated rooms and but one wall is exposed.

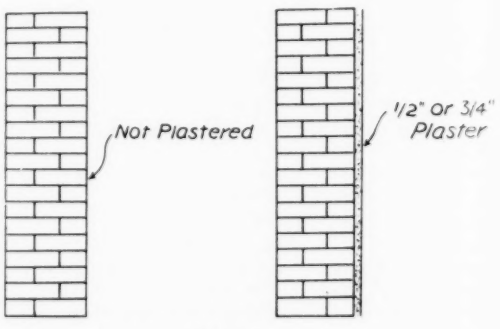


Fig. 2.

By careful tests and experimenting it has been determined just how many heat units are cooled per square foot

per hour by walls of varying thickness and character under certain conditions of inside and outside temperatures; also by windows having single and double glass. All heating authorities do not agree exactly in their findings, but the results determined are sufficiently close to enable the working out of fair averages.

Fig. 2 illustrates a section of a brick wall not plastered and also a section plastered on the inside. The cooling value of a brick wall of each type is as follows:

Not Plastered	9 in. Wall	28 B. t. u. per sq. ft. per hour
	13 in. Wall	21.5 B. t. u. per sq. ft. per hour
	18 in. Wall	18 B. t. u. per sq. ft. per hour
Plastered	9 in. Wall	25 B. t. u. per sq. ft. per hour
	13 in. Wall	20 B. t. u. per sq. ft. per hour
	18 in. Wall	16 B. t. u. per sq. ft. per hour

Fig. 3 illustrates two types of stone wall construction; a stone wall plastered smooth, the plaster varying from ½-inch to ¾-inch thick, and a wall furred, lathed and plastered. Their cooling value is as follows:

Plastered Smooth	12 in. Wall	30 B. t. u. per sq. ft. per hour
	16 in. Wall	25 B. t. u. per sq. ft. per hour
	20 in. Wall	20 B. t. u. per sq. ft. per hour
Furred, Lathed and Plastered	12 in. Wall	25 B. t. u. per sq. ft. per hour
	16 in. Wall	20 B. t. u. per sq. ft. per hour
	20 in. Wall	15 B. t. u. per sq. ft. per hour

A frame wall with building paper against the outside of the studding and clapboarded wiill cool 20 B. t. u. per sq. ft. per hour. If the studding is sheathed and clapboarded,

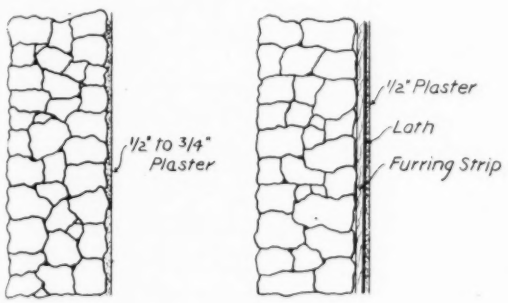


Fig. 3.

with building paper between, it will cool 15 B. t. u. per sq. ft. per hour. It is assumed in each case that the inside of the studding is lathed and plastered.

A sq. ft. of single glass window will cool 77 B. t. u. per sq. ft. per hour (some authorities figure 75), or if double glass will cool 40 B. t. u. per sq. ft. per hour.

What is a B. t. u. or heat unit? There have been given so many explanations of this term that many students of heating are confused regarding it. Everybody understands that the pint, quart and gallon are units of liquid measure, and the peck and bushel are units of dry measure. These commodities are visible, and we can handle them. Heat, like electricity, is not visible, and we cannot see it or handle it as a commodity. We measure electricity and heat by the effect they produce. The unit of electrical measure is the watt or kilowatt hour. Its motive force is indicated by volts. Heat is measured by the heat unit (known as the British thermal unit or B. t. u.) which is the unit of heat measurement used in all British and American heating practice. It is the amount of heat required to raise one pound of water one degree, or from 32 degrees to 33 degrees on the Fahrenheit scale. This is the scale upon the ordinary mercurial thermometer.

All heating problems can be worked out by using the heat unit as a basis of calculation, and, therefore, it is important that a person studying the science of heating should become thoroughly versed in its application. All rules for figuring radiation, that are considered reliable, have been worked out on a heat unit basis. The "rules of thumb," formerly in very common use, are not reliable, as they are based upon the size or cubical contents of the room or building to be heated and not upon the cooling surfaces of it. The cubical content of the room is determined and then

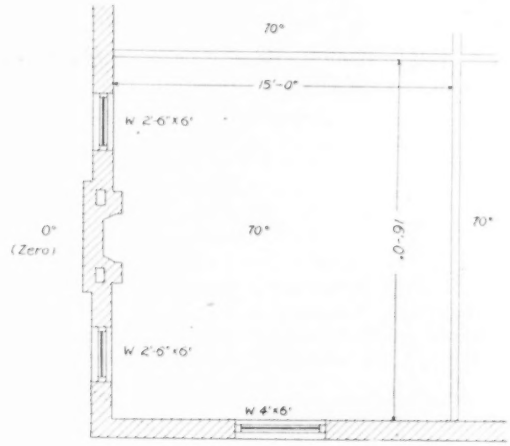


Fig. 4.

one sq. ft. of radiation is allotted for a certain number of cu. ft. of space, the amount depending as to whether the room is on the cold or warm side of the building or other conditions. This is little more than a guess at the requirements. There is perhaps no better example of this than to consider three rooms of equal size as to cubic feet of contents and area, but each having a very great difference in the amount of cooling surface—meaning windows and outside walls.

Fig. 4 shows a floor plan of a corner room 15x16 feet in size which we will assume has a 10 ft. ceiling. The room has one window 5x6 feet and two windows 3x6 feet each. The wall is a 13-inch brick wall lathed and plastered on the inside. The windows are of ordinary single thick glass. The cubic contents of the room is 15x16x10 or 2,400 feet. The exposed surface (gross) is 15 + 16× 10 or 310 sq. ft.,

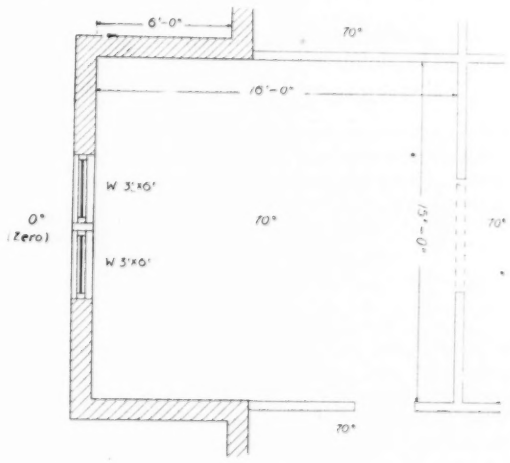


Fig. 5.

and the glass surface totals 54 sq. ft. (4 × 6 = 24 + 2 ft. —6 in. × 6 × 2). The infiltration is estimated at 1¼ times the cubical contents hourly. Based upon the cooling values given above for wall and glass, the hourly B. t. u. loss is determined as follows:

2,400 × 1¼ = 3,000
310 × 20 = 6,200
54 × 77 = 4,158

Total hourly loss, 13,358 B. t. u.

Compare this result with the requirements shown by the room illustrated by Fig. 5. This is a middle room, 15 x 16 x 10 feet in size, extending outward in a gable about 6 feet beyond the line of the side wall of the corner room. The area and cubical contents are identical with those of the room shown by Fig. 4. The exposed wall surface is 6 + 6 + 15 × 10 or 270 sq. ft. The room has two windows 3x6 feet in size, totaling 36 sq. ft. of glass. The hourly loss is figured:

2,400 × 1¼ = 3,000
270 × 20 = 5,400
36 × 77 = 2,772

Total hourly loss, 11,172 B. t. u.

The third room, illustrated by Fig. 6, shows a still greater difference in the requirements. It is a long, narrow room,

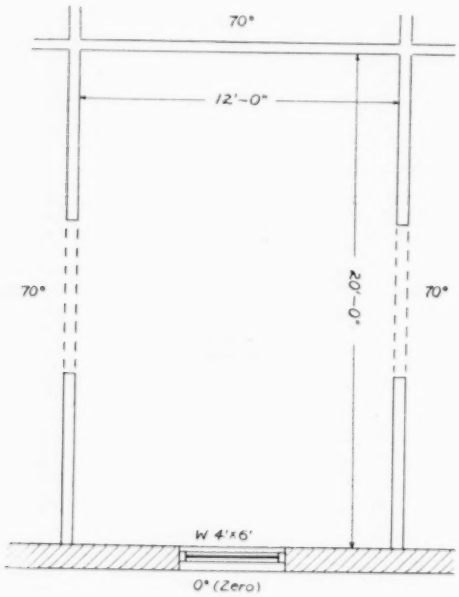


Fig. 6.

12x20x10 feet in size, having but one window 4x6 feet. It is a middle room with the wall exposure the narrow way of the room, or 12x10 feet, having a total of 120 sq. ft. of exposed wall. The B. t. u. loss is figured:

2,400 × 1¼ = 3,000
120 × 20 = 2,400
24 × 77 = 1,848

Total hourly loss, 7,248 B. t. u.

These examples show that the room illustrated by Fig. 5 has but 85 per cent of the heat loss of the corner room, and that the room shown by Fig. 6 has but a trifle more than one-half of the loss of the same room. The amount of radiation required to warm the latter rooms will be reduced accordingly.

Having determined the amount of heat loss of a room or building the next operation in estimating is to determine the amount of radiation required to make good the heat lost. It has been repeatedly demonstrated that one square foot of surface in an ordinary cast iron radiator will give off 1.6 heat units per sq. ft. per hour per degree difference between the air surrounding the radiator and that of the steam, vapor or hot water in it. We have found that this statement is more or less confusing to many steamfitters and to show more clearly what is meant by it we will suppose that the heating agency used is low pressure steam. Steam at 2 pounds pressure has a temperature of 219 degrees. We assume that the radiator is standing in a room having a temperature of 70 degrees. The temperature difference, or degree difference, is therefore 219—70 or 149 degrees. If each square foot of the radiator gives off 1.6 heat units for each degree of temperature difference between the air and the steam 149 × 1.6 = 238.4 heat units given off. This we commonly consider as 240.

Lest this statement be confusing to those who have read or been told that a square foot of low pressure steam radiation will give off 250 B. t. u. per sq. ft. per hour, let us say that formerly steam at 5 pounds pressure was considered as low pressure steam. At 5 pounds pressure steam has a temperature of 228 degrees. 228 — 70 = 158 degrees difference and 158 × 1.6 = 252.8, commonly considered as 250.

With hot water as the heating agency we may consider that the average temperature of the water in the radiator is 165 degrees. 165 — 70 × 1.6 = 152, commonly taken at 150 B. t. u. per sq. ft. per hour.

Knowing the B. t. u. heat loss from a room, as per examples given and rooms illustrated, we divide the total heat loss by the rate of heat transmission from the radiator and the result will be the number of square feet of radiation required to maintain the temperature or to heat the room. Thus the room illustrated by Fig. 4 having a heat loss hourly of 13,358 B. t. u. would require 55.6 sq. ft. of steam radiation (13,358 ÷ 240) or 89 sq. ft. (13,358 ÷ 150) of hot water radiation.

We can now realize the great difference in the requirements for the three rooms. On the above basis the room illustrated by Fig. 5 requires 46.5 sq. ft. (11,172 ÷ 240) of radiation for steam, or 74 sq. ft. (11,172 ÷ 150) for hot water. The room illustrated by Fig. 6 requires 30 sq. ft. for steam or nearly 50 sq. ft. for hot water.

All short cut rules for estimating radiation, if they have any claim as to accuracy, are based upon the requirements in heat units, as we have illustrated and explained. In a future article we shall give and discuss some of the more accurate and widely used rules and explain their application.

The Geological Survey has recently issued a press bulletin on clay products. The bulletin states that the value of clay products marketed in the United States in 1919 is estimated by Jefferson Middleton at $260,790,000, the highest yet recorded. This is an increase of $40,216,000 compared with 1918 and of $28,277,000 compared with 1917, and is nearly $100,000,000 greater than the value of ten years ago. The value of brick and tile products constituted 71 per cent and that of pottery products 29 per cent of the total.

Plans by which the meat packing interests of the country intend to carry out the recent Government decree requiring the divorcement of allied interests from that industry were submitted to court recently for approval. Representatives of the five principal companies appeared in the Supreme Court of the District of Columbia to obtain the court's approval of the sale of meat packing properties in the fifteen cities, valued at from $30,000,000 to $40,000,000, to F. H. Prince & Company, of Boston.

United States trade with Canada for 12 months ended with July reached a total of $1,156,488,145, an increase over the corresponding period, ending July, 1919, of $261,658,855. United States sales to Canada were $881,147,000, an increase of $186,289,285, while United States purchases from Canada were $537,000,000, an increase of $75,363,570.

MEET HARD COMPETITION *by* HARD WORK

Live Methods Required to Meet Live Competition—Small Dealers Have Advantage of Personal Contact and Knowledge of Local Needs

By William Hutton

A FEW years ago I heard a successful merchant say that the success of mail order houses was an indictment of the business methods of the men who were complaining of it. He said that anyone, who had the advantage of personal contact with his customers and who let them get away from him to buy from a picture book, was no merchant at all.

I think that, in a large measure, he was right. It certainly is true that he can hold his trade, and he is in a line of business far more susceptible to the attack of mail order houses than the plumbing and heating business. If we cannot sell goods which require a considerable amount of labor and expense to put into service after they are delivered to the buyer, how could we sell merchandise which is ready for use as soon as the package is opened?

The article in the July 24th issue of "Domestic Engineering" is valuable just the same. It gets us thinking again and comparing our efforts to keep up to date with those of our fellow business men. The article suggests remedies which are unfailing, and among them the leader undoubtedly is publicity. Printers' ink is the fluid which runs in the veins of every live business.

Controlling the Situation in Large Cities.

It is somewhat surprising to the small town or village plumber to learn that mail order competition is feared by the city plumber with his advantage of strict plumbing regulations and better organization among the trade. No matter how well-worded an advertisement may be, and how easy the installation of plumbing fixtures may be made out to be, if the prospective purchaser is made aware that such work can be done only by men licensed to do such work, and under the supervision of the city authorities, he will think twice before he spends his money. Organization plus printers' ink surely can control the situation in such cities.

My friend, the merchant who claimed that mail order competition is a bogey only to the incompetent merchant, had a proper appreciation of the value of "customer confidence." We in the smaller towns, from all points of view more likely to suffer from mail order competition, have this great advantage. We can get the personal touch with our trade which is the biggest asset any merchant can have. We can pick out from our directories a list of desirable customers and aggressively set out to get their business.

The Plumber's Advantage.

When we do get it, we can show them that we appreciate it and that we are earnestly desirous of keeping it. The best argument we can offer is honest treatment and a readiness to give service at the time it is wanted. Even if such service is sometimes unprofitable, it is the means of building up a friendly feeling which the best correspondent of the largest catalogue house in the world can never hope to secure for his house.

While this confidence in our superior position is never to be lost sight of, neither is the fact that the values offered by reliable mail order houses are undoubtedly good and the temptation to buy from them is great. If you have ever lived on a farm you know what a "pull" the big catalogue has and if you have found the stores in the near-by town unable to show you the goods you are in need of and the proprietors unwilling to exert themselves to fill your needs, what else would you do than fill out a money order form and get the goods in due time, even if there is some doubt about the quality being quite as fine as the catalogue says it is?

"T. E. B." Work Valuable.

The work now being done by the National Trade Extension Bureau is an invaluable one to our trade. It is making merchants of us, and by and by we shall find out that it pays to be up to date in our displays, to be unfailingly courteous to the man who wants service, to set out to create a desire for our goods long before the idea of using them ever has entered his mind. That is real merchandising as practiced by the mail order house and by every merchant who has made a success of his business.

Co-operation is a valuable feature in business building and the proof is easy to find. This applies to other than "associations for the protection of trade." I mean co-operation among merchants. Take as an instance the merchants in a small city drawing a large part of its trade from a surrounding farming country.

Here is a practical idea which at the present time is being put into action. It was brought up first in a meeting of the Merchants' Association of the town, but after being talked to death, fell through because of the shortsightedness of some of the members. But four of the live business men of the city thought well enough of the project to carry it through on their own account, and undoubtedly they will profit accordingly, and at the expense of their fellow association members, as well as the mail order houses who have been getting some business in the territory.

A Co-operative Mailing List.

A furniture house, a dry goods store, a general hardware and machinery store and a plumbing and heating contractor are the four who are co-operating. Each firm has made out a list of the people in the town and district with whom it desires to do business. Every name is checked and a credit rating given. The complete list is gone over and duplications eliminated. Then a first-class mailing list is available.

A small but comprehensive catalogue is being prepared and a copy will go out to every name on the list. The cost to each will be reduced to the minimum by this co-operative scheme, and each will have a representation at a cost according to the space occupied. The introductory printed matter explains that the four houses are prepared to guarantee every article to be exactly as represented, to show

the goods offered before selling, to guarantee that it is the product of a well established and reliable manufacturer, and in the case of machinery or equipment which in time will require adjustment or replacement of parts, that such parts will be procurable at a moderate price.

Looks Like a Winner.

Further circularizing is contemplated and this may be co-operative or individual, as the firms may find desirable. The point is made and kept sight of on each page that here are stocks of merchandise right at the door of the purchaser, honestly priced, in perfect condition, backed up by the reputation of men of local standing and by makers of national reputation. Will it be a winner against the catalogue of a house a thousand miles away in these times of poor transportation service? It looks like it.

Even if such an arrangement cannot be arrived at, a real campaign among good prospects is not a very expensive proposition to handle. Advertising literature may be had by the bushel. Circular letters are highly effective if they offer something that is certain to be of interest to the recipient. Surely every plumber can pick out from his directory enough names of people of whom he knows something, to make it worth while writing them periodically about what he can do for them and about the new things that are being produced in our line.

Meeting "Pipeless" Furnace Competition.

Now for a sample letter which was successfully used by a sheet metal shop in a town which was taken by storm by a large manufacturer of one-pipe furnaces. This sheet metal man knows his business, but he did not realize his opportunity among farmers until the invasion of his territory began.

The letter is not a literary masterpiece, and is not offered as such. It was written because of a sincere conviction that the writer could do better by those who might need a furnace than the aggressive outsider who had come in to sell against him. Here it is:

Letter to Prospects.

"For twenty years I have been quietly going about my business, placing furnaces in the homes of those who needed them, reading my trade papers and keeping abreast of the times in good practice. I always have advocated the use of good material and appliances, and have taken pride in the work I have produced. And the fact that I have kept the trade of so many people throughout the twenty years satisfies me that they have recognized the value of proper workmanship and honestly made goods.

"I have not lost sight of the efforts made by one-pipe furnace makers to introduce this form of heater. In fact, I already have placed one or two where I knew they would work well. But I have refused to believe they can be used in every house with equally good results and I object to be classed as a back number by an impractical salesman who is willing to sell his goods to every one who has the price.

"Right in my store there is a sample of the best one-pipe heater I can buy. If you have been interested in the claims of advertisers in your farm papers and the local newspaper and have almost decided to buy,—wait.

"Telephone me and I will come out to your home. If a one-pipe heater will warm it satisfactorily, I will willingly let you compare the quality and price of my goods with that of any other dealer, local or outside.

"But,—if I am convinced that a one-pipe heater will not meet your expectations to the letter, I'll tell you so, for I value my standing with you far more than the dollars I would make by selling you the heater.

"And, by the way, you ought to have your roof looked over this month. It may not need much, but this is the time to get after it. I have a good stock of gutter and metal on hand and the price is better than you'll be able to get after this lot is used up.

"Your for good service,

"....."

Letter Had Results.

Out of ten people who responded to the letter four were sold one-pipe heaters. Two were sold heaters of the standard type with means for circulating the air in the house. The remainder were convinced that one-pipe heaters would not do better than the stoves they now have, and are good prospects for substantial furnace jobs next season. All of the ten were on the point of buying from the aggressive peddler who had invaded the territory. So the letter knocked ten sales on the head and undoubtedly kept others who might have been sold from taking everything that was claimed as gospel.

One good talking point against mail order buying is that of replacements or repairs. In equipment that eventually will require new parts, the difficulty of getting them from a catalog house which may be buying the goods on contract and discarding the model long before the need for a replacement is felt, is a serious one. In the stove and range business this point has been successfully raised and carried many times. When we can truthfully say to a man who has asked us to procure a new grate for a range only a few years old, that it is next to impossible to get it, when he has written the house himself and proved it to be true, how easy it is to sell him a good range of a standard make with the assurance that new parts will be available for the life of the range.

Selling the Installation Work.

When customers are inclined to buy plumbing or heating equipment with the intention of installing it themselves, we do not object to make the sale, but we do endeavor to show them that the labor cost is trifling when the hard work and slow progress, through inexperience and insufficient tools, are considered. Perhaps not so many of the actual users are purchasers of this class of merchandise, as small builders and speculators who find plumbers with little enough spunk in them to refuse to turn down the job of installing it. Sell the material without the labor, if you will, but not the labor without the material, and the mail order competition will fizzle out.

NEWS OF THE WORLD.

Federal Water Power Commission announces that regulations dealing with the requirements of all applications for permits and licenses under the Water Power Act were approved Sept. 3 by the commission. Those governing construction, operation and maintenance of projects under the act are being prepared by the commission and probably will be promulgated in about a month. Hearings will be heard on all sections of regulations before finally adopted. About fifty informal applications for project permits have been received by the commission to date.

The Journal of Commerce has compiled returns indicating that during August, 1920, companies were formed aggregating capitalization of $941,288,300, this total being the smallest for any month since August, 1919. Incorporations since January 1st involved $10,111,823,200 compared with $6,048,657,400 and $1,772,674,000 during January-August, 1919 and 1918, respectively.

Correspondence from Brussels to the New York Evening Post states that the Belgian Chamber has passed a law providing for bonus for all Belgian soldiers regardless of rank. Each soldier will receive 75 francs for each month of service at the front between Aug. 1, 1914, and Nov. 11, 1918, and 50 francs for each month of service at the rear or while interned as a prisoner of war.

COMPARATIVE EFFICIENCY *of* VENTED HALF-S TRAPS *and* NON-VENTED ANTI-SIPHON, NON-SIPHONING *or* RE-SEALING TRAPS

An Exhaustive Investigation Conducted by A. E. Hansen, Sanitary Engineer, New York, for The Master Plumbers' Association of New York City

(Continued from Page 474 in the August 28th Issue.)

Three-Inch Waste Stack.

Several reasons existed why additional tests should be conducted besides those described. The 4-inch stack had fixture and branch connections on each floor below the 5th, which were thought to possibly have influenced to some extent of the degree of vacuum. Also, since the 1st floor was occupied and was furnished with a vented toilet and vented ½S trap wash basin, there were no means of ascertaining the intensity of the back pressure which we know must exist in the lower reaches of any soil pipe stack, the foot of which was not properly relieved by a vent line. Furthermore it was desirable to ascertain if possible, how much of a variation of the rate of discharge through different size stacks would be required to produce complete destruction of the seal of anti-siphon traps.

Photo No. 10.

For these reasons a 3-inch extra heavy cast iron waste stack was erected in the stairwell, up through the roof, and connected at its foot in the cellar by a 3-inch extra heavy cast iron line about 10 ft. long, having ¼-inch fall per foot and two 90-degree long sweep bends, into the 5x3 inch extra heavy Y branch of the 5-inch house drain.

The total length of the stack was 74 ft. 3 inches. At a point 13 ft. 9 inches above its foot it had a 3x2-inch Y and 13 ft. 4 inches below its top a 3-inch by 1½-inch T-Y, both for connections of traps under test.

At a point of 6 ft. 7 inches below its top, a 3-inch by 2-inch Y was inserted and another similar fitting directly above. The former was connected by a 2-inch valved galvanized iron pipe to the bottom of a 53 gallon barrel; the latter by a 2-inch galvanized iron pipe without valve, but with a 2-inch ½S lead trap and 2-inch brass bath waste connection and strainer purchased in the open market and identical with those used in the New York City Hotel Pennsylvania guests' baths.

A 2-inch screw pipe vent stack was installed adjacent to the 3-inch waste stack and also extended through the roof. Its foot was dripped into the waste stack by a 3x2-inch Y and 45 degree elbow in the usual manner, and a 2-inch valve was here inserted so that the 2-inch vent line could be completely closed.

On the 5th floor a 2-inch continuous waste and vent connection was made between both stacks in the usual manner, a 2-inch gate valve being also inverted on this 2-inch cross connection adjacent to the 3x2-inch tapped TY for controlling purposes.

In all tests of anti-siphon traps the 2-inch gate valve at the foot of the 2-inch vent stack and that in the 2-inch continuous waste and vent connection on the 5th floor were closed, except in certain instances of demonstrations to visitors, who desired to see for themselves that the proper venting of the foot of a waste stack by drip vent connection removes completely that enormous positive pressure which was found to exist in the lower reaches of the 3-inch waste stack during the discharge of the bath tub or barrel on the roof. In such cases the 2-inch gate on the 2-inch vent drip connection was temporarily opened.

The tests of the anti-siphon traps were limited largely to the Geco and the vented ½S traps, although the other anti-siphon traps were tested merely to determine if they would lose their seals under the same conditions as the Geco, and it is stated here without future reference thereto, that the seals of all of the anti-siphon traps tested were completely or practically destroyed under the same conditions as that of the Geco trap. No attempt was made to determine if a smaller flushing rate would break the seal of any of these other traps.

The seal of the Geco trap, when attached to the 3-inch by 2-inch tapped T-Y located 3 ft. 5 inches above the 5th floor

and 13 ft. 4 inches below the top of the 3-inch stack, was found to be completely broken when 53 gallon contents of the barrel were discharged into the 3-inch stack through the full open 2-inch gate valve in 34 seconds, corresponding to an average discharge of 94 gallons per minute.

It was found on further investigation that the 2-inch waste pipe from the barrel could be materially throttled, until the

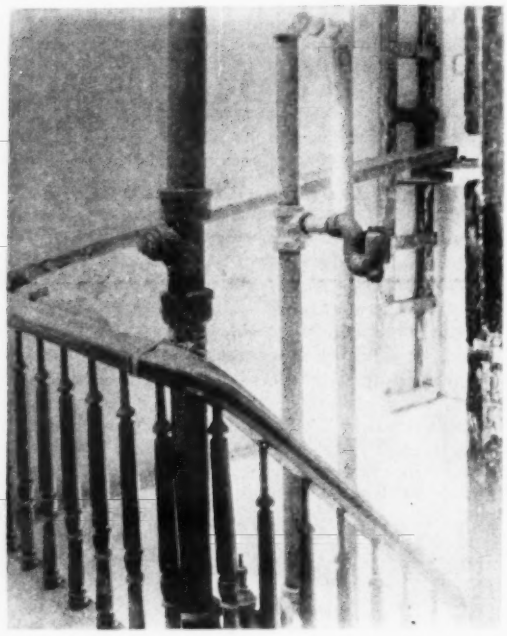


Photo No. 11.

barrel discharged its 53 gallons in 42 seconds, corresponding to an average discharge rate of 76 gallons per minute.

Still further, when the barrel was full and its waste pipe gate valve wide open, a discharge of only 12 inches of its total depth of 31½ inches, that is 19.2 gallons were required to completely destroy the Geco trap seal.

The start and stop method of testing with three 5-second flushes, and 5-second intervals between flushes, was also tried. Under this test the Geco trap failed completely by breakage of its seal, the average flushing rate being 111 gallons per minute. The same result was obtained when the 2-inch Geco trap waste pipe was extended 7 feet from the stack with two 45-degree and two 90-degree elbows between traps and 3-inch stack.

The bathtub was then filled with water, the 2-inch gate on the barrel waste closed, and the bath tub discharged. A complete siphonage of the trap seal took place as before.

By repeated experiments it was found that the discharge of 35 gallons of water from the bathtub was sufficient to break the Geco seal. This discharge was at the average rate of 75 gallons per minute; also that it was broken by three 5-second flushes from the bathtub, with 5-second intervals, these discharges being at the average rate of 110 gallons per minute.

I am satisfied that any trap, connected to a 3-inch waste stack in a five-story building, with the top of its waste line wide open, which, when brand new and clean, had its trap seal not merely decreased but entirely wiped out by the discharge of 35 gallons of water from a bathtub on a floor above connected to the 3-inch stack by means of a 2-inch waste pipe with a 2-inch standard ½S trap and a standard 2-inch waste connection such as is used in connection with high class bathtub work, is unsafe and unfit for use.

One of the particularly interesting developments of the 3-inch testing stack was its perfect demonstration of back pressure. A Geco trap with a 5-inch tail piece in its inlet end was connected to the 3-inch by 2-inch Y branch on the 1st floor, 13 ft. 9 inches above the foot of the stack. The bathtub on the roof was then discharged. The back pressure within the stack was so great at the first floor trap, that the trap spouted out in gushes, some of the highest drops reaching the ceiling over 6 feet above. These gushes would break up like fountains into bubbles and drops, covering an area about 4 feet in diameter. A moderately successful photograph of this back pressure is shown herewith.

This outpouring of the trap contents into the room, or rather stairwell in this instance was unaffected by the simultaneous siphonage of the 5th floor traps. Indeed any one had by one discharge of the bathtub the opportunity of seeing both the complete siphonage of the upper floor traps and the complete breaking of the seal of the lower floor trap by back pressure. I regret that the actual amount of this pressure was not measured. The amount of vacuum on the top floor was in excess of the capacity of the water column U tube gauge used, which was capable of registering 2¾ pounds.

To compare the behavior of the vented ½S trap under identically the same conditions, the Geco traps were removed from the 3-inch stack, and the 3x2-inch branches plugged. A ½S trap was then connected to the 2-inch by 1½-inch T-Y on the 2-inch vent stack on the first floor (as is usual in New York City practice), and another ½S trap connected to the 2-inch by 1½-inch T-Y in the 2-inch continuous waste and vent connection on the 5th floor. The gate valves at the foot of the 2-inch vent stack on the 1st floor and in the 2-inch continuous waste and vent connection on the 5th floor were then opened and the bathtub on the roof discharged. The 5th floor trap seal was lowered by only ⅞-inch, leaving 2⅛-inch; the first floor trap was hardly disturbed, although a slight wave action was noticeable which removed about ⅛-inch of its seal.

No tests were made at any time with the top opening of the 3-inch waste stack reduced in diameter.

Many interested persons came to witness these tests, including architects, plumbers, city plumbing inspectors, sanitary

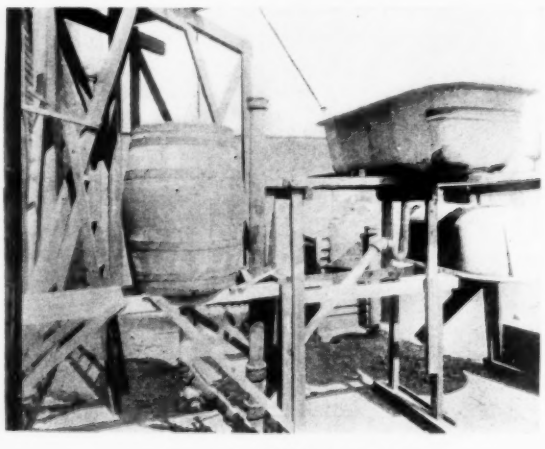


Photo No. 12.

engineers, health and building department officials. I believe that even those, who had been ardent advocates of anti-siphon traps, went away with their view-points considerably altered and impressed with the sincerity of our efforts to show them the truth and nothing but the truth. That many of the visitors were staggered to see their fond hopes of a panacea for all plumbing trap evils, the much heralded and patented and re-patented anti-siphon traps, torn to shreds, is no wonder. Even those of us who expected to see the existence of some

weakness in anti-siphon traps and of some strength in vented ½S traps, were astounded at the developments of such utter worthlessness as was demonstrated for the former and such strength and resiliency and safety as was proven for the latter.

4. SUMMARY.

In summarizing this report, permit me to adhere to its development, starting with the introduction of plumbing traps,

Photo No. 13.

reviewing the history and present stage of trap development, referring to opinions of competent men about the Geco trap, and completing with the latest phases of the anti-siphon trap and ½S vented trap tests in New York City.

A. Introduction and Historical Development of Plumbing Traps.

The earliest records seem to indicate the use of the "Bell" or "Stench" trap as early as 1856 in this country, "improved" by a flap or check in 1862. The bent tube traps, D traps, Anti-D traps and similar forms appeared in about 1872 to 1875. Back-venting of traps seems to have been first agitated in 1875 to 1876 by the Brooklyn Board of Health and was recommended by Col. Waring in 1878. In 1879 unsuccessful attempts were made by a journeyman plumber to maintain patent claims on the back-venting system.

The anti-siphon forms of traps with enlarged body similar to that used by the U. S. Housing Corporation was patented in 1873. The Geco trap was patented in 1910.

The first serious attempt to supplant back-venting by anti-siphon traps began by Col. George E. Waring in 1880, two years after he had patented his anti-siphon trap. Since then there has been much confusion about the subject and many attempts have been made to becloud the issue by those interested, and to clarify it by independent engineers who were not patentees of traps.

An investigation was made by Col. Waring on the subject for the National Board of Health. It appears to have contradicted the Colonel's earlier statements about the necessity of back-venting, and the report was never published by the National Board of Health.

In 1882, Messrs. Bowditch and Philbrick experimented for the National Board of Health in an extensive and searching manner. These gentlemen recommended the use of back-venting.

In 1882, S. S. Hellyer, of London, England, conducted a series of experiments. Although Mr. Hellyer was the patentee of the Anti D trap, he advised the use of venting.

In 1884, J. Pickering Putnam, of Boston, the patentee of the Sanitas trap, claims to have investigated the subject by experiments for the Boston City Board of Health. This Board seems to have repudiated Mr. Putnam's report because of self interest and because of the refusal of Messrs. Bowditch and Philbrick to co-operate with him. Mr. Putnam's report was very strongly in favor of anti-siphon traps, and the ommission of back-venting.

In 1885 the Master Plumber's Association of Boston conducted experiments of their own in Worcester, Mass., under the supervision of its chairman, J. O. Sisson. Its findings favored the use of venting.

About 1884, Dr. Chas. F. Chandler, then president of the New York City Board of Health and later professor of Industrial Chemistry at Columbia University, conducted experiments in New York City and on their strength enforced the plumbing regulations making the individual venting of fixture traps obligatory. Dr. Chandler stated publicly that the forced introduction of an unvented patented anti-siphon trap would be a crime.

In 1886, J. Pickering Putnam installed an experimental testing apparatus at the Massachusetts Institute of Technology. The apparatus, as illustrated in his book, shows that the trap vent connections were made on the house side of the trap under test and other irregularities which condemn the test and its results as being either incompetent or unfair.

In 1886, Glen Brown, of Washington, was asked to investigate and report on the use of anti-siphon traps versus ½S vented traps to the U. S. Navy Department. Mr. Brown strongly favored venting.

In 1906 tests of anti-siphon traps were made under the supervision of the Chicago Board of Health resulting in the compulsory venting of traps.

Tests were made in Washington, D. C., by the office of the Engineering Commission of the District of Columbia, on the basis of which venting was made compulsory in that District.

Additional tests were made by the Departments of Building in Davenport, Ia., Elmira, N. Y., and Wilkes-Barre, Pa., resulting unfavorably to the use of unvented anti-siphon traps.

The cities of Richmond, Va., Rochester, N. Y., and Holyoke and Springfield, Mass., reported that tests were made and that the use of unvented anti-siphon traps has been permitted in these cities since that time.

It is reported that experiments were also made by H. J. Luff, the patentee of an anti-siphon trap, at the Case School of Applied Science at Cleveland, Ohio; that these tests were not, however, carried on under ordinary operating conditions; they are therefore incompetent.

T. N. Thomson, Instructor of Plumbing at the International Correspondence School, Scranton, Pa., reported on observations of actual conditions where traps were forced by back pressure because of the absence of venting.

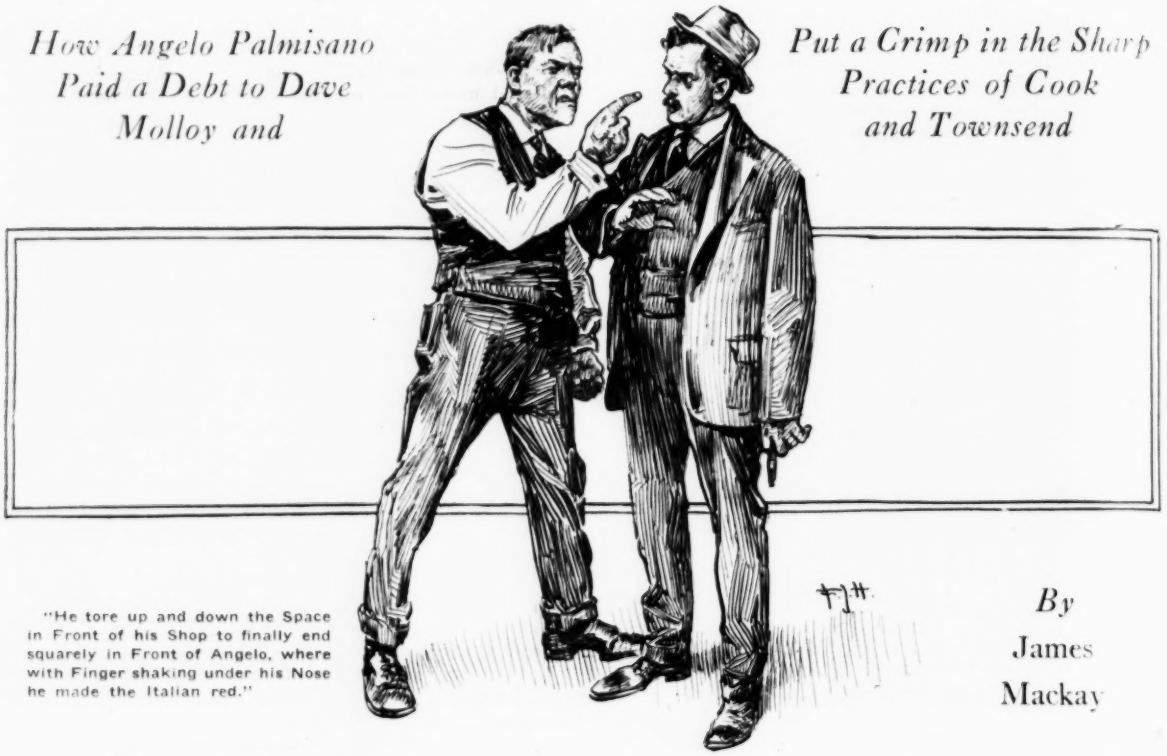
In 1919 tests were made in Bridgeport, Conn., at the direction of the U. S. Housing Corporation by a Committee of five, consisting of three engineers, a plumbing contractor, and a sanitary inspector. These tests were unfortunately left incomplete.

A survey of these investigations and tests shows that those made by disinterested and competent men invariably resulted in reports favoring the use of venting and the elimination of unvented anti-siphon traps, except in the case of Rochester, Holyoke, Springfield, and Richmond, Va. In these instances

(Continued on Page 571.)

VENDETTA

How Angelo Palmisano Paid a Debt to Dave Molloy and Put a Crimp in the Sharp Practices of Cook and Townsend



"He tore up and down the Space in Front of his Shop to finally end squarely in Front of Angelo, where with Finger shaking under his Nose he made the Italian red."

By James Mackay

THE office of the Molloy Plumbing & Heating Co. was in a turmoil. David Molloy, master plumber, local celebrity in the politics of Springfield, president of the State Association of Master Plumbers, had just returned from the state convention to find that an important order he had issued had not been complied with, and that he was now in for a nasty legal tussle with two of the sharpest real estate men in the town. And that the matter might eventually very seriously embarrass him.

The office force had suddenly found they had important errands to attend to and had decamped, leaving the Hon. David Molloy at the phone, rapidly running up his blood pressure over "busy" signals, "don't answer," and "wrong party." David was excited; he had tried to reach Angelo Palmisano, head of the Palmisano Teaming & Transfer Co., all afternoon without success. Something was going to happen to Angelo when David sighted (or sounded) him.

The cause of all this excitement was due to a piece of poor business judgment, or rather poor business practice on the part of Mr. Molloy. He often let his kindly, honest, good-natured disposition overlap his business sense. Usually it came out all right, as belief in human nature usually does; sometimes, however, it doesn't work out along the lines of the Golden Rule. At least not at once, and in a particular case.

Once in awhile David would take a contract on a verbal notice to "go ahead—and make a good job of it." There was a note of implied confidence in that kind of an order, which David found it hard to chill by asking for a signed contract. And so it happened that when his old-time friend Arthur Remington awarded him both the heating and the plumbing of Springfield's new theatre and hotel—which contracts ran well over a hundred thousand dollars—and gave it to him at his own price, David Molloy didn't think it necessary to insist that Remington sign the contracts which had been left with him. Remington was one of Springfield's most solid citizens, and was putting up the big new structure without outside aid. The roughing-in was well under way when Remington became ill. The direction of the work was left to his agents, Messrs. Cook and Townsend. Payment for completed work had been deferred time and again, until the total due had run into a considerable sum. Then it developed, just a few days before Remington died, that Messrs. Cook and Townsend had purchased the property outright, and were handling the deal as owners. The building was now nearing completion; Molloy had ordered the supply house to ship the material to complete. This had been forwarded in four fully loaded freight cars.

Just before he went to the convention he called on Cook and Townsend for payment on account, and was met with a flat refusal, and was threatened with suit for damages for delaying the building (which was false). Knowing the character of these men, who had at one time or another stung every contractor in town, he gave the Palmisano Teaming & Transfer Co. an order to hold the four cars on arrival, and under no circumstances to deliver the material to the building. If there was going to be a fight, he would get in the first punch.

What was his astonishment to find on his return that all of the material was at the job! Palmisano had done his hauling for years—back to the days when Molloy was struggling along in a small basement shop and the Angelo Team-

ing and Transfer organization consisted of Angelo himself, a very old horse and a wagon very much the worse for wear, and always accompanied by a large detachment of black-eyed small denizens of Little Italy. Palmisano had grown, as had Molloy, with the town, and was now a substantial citizen. And this was the first time he had blundered. And what a blunder! Molloy was furious. No doubt he could eventually collect, but he did not relish the thought of having to toe the mark set for him by Cook and Townsend.

Just when his rage was at its height, Mr. Cook called him on the phone to tell him he was sending him a letter ordering him to have his men on the job in the morning; that if they were not there by noon he could consider himself fired off the job; Cook and Townsend would employ others to do the work; and would pay for the material direct. The letter came by special delivery, and it repeated the phone message. They didn't once hint he had a contract; just nonchalantly treated him as an employe.

Just when Molloy was about on the verge of apoplexy, who should walk in but Angelo Palmisano, looking at peace with the world, and with a soft smile playing over the classic Italian face of him. For a few seconds Molloy couldn't utter a word. He just glared. But when he let loose, the torrent of words was indescribable. He tore up and down the space in the front of his shop, to finally end squarely in front of Angelo, where with finger shaking under his nose he made the Dago red.

"Meesta Molloya," came the soft accents of Angelo's voice, "seet down before that terribla anger he keel you. There eesa no thing atall to worry about. Let me tell you sometheeng. You go down dat convention, and laye aroun' wit other good for notheeng plumber man—and drink hup lots cheap half per cent. Angelo he stay home and ron your beesiness." Angelo's face suddenly set. "Look here David!" In his sudden change from the soft spoken Italian to the curt quick tones of the American business man, there was something of the tiger in his glittering eye and darting gestures. "Look here David! You an' I have worked together many years. We both know this town and every worth while man and every crook in it. When I got your order about the Remington building material, I knew at once just what had happened. For I had had a little business deal with Mr. Remington myself just before he died; incidentally that firm of crooks—Cook and Townsend—drew up the papers. Your material has not been delivered—wait David don't look so startled, you will get the whole story.

"I owe that rascal Cook something myself. Do you remember, David, that first winter I knew you and the Christmas eve my little bambino was so sick?" Angelo dropped back to the soft accents of his native land, and with quieted voice and tears slowly gathering in his great black eyes went on. "David you came by on your way home, talked with us, gathered without our telling you our deep trouble,—no funds, no food, no medicine and no doctor for the little one slowly slipping away from us. When you left you slipped into my wife's hand two twenty dollar bills—Wait David—I happen to know how, it doesn't matter—that you went home that night empty handed, with no Christmas things for your own good wife and babies. Now it so happened that I had made desperate efforts for a week to raise some money. Cook was our agent and had given us notice to pay up or vacate. I had arranged with him to borrow fifty dollars, but could not obtain it until after Christmas, and then had to agree to pay him $100.00 back, and mortgage my horse and wagon as security. I know of many sharp deals this scoundrel has pulled off in this town. Well—we'll pull one off on him.

"David, I own the lot on which those four cars of material were put! I bought it from Mr. Remington. The delivery has not been completed, and further, the material is not at the building, but on property of the Palmisano Teaming & Transfer Co., which happens to adjoin the Remington Hotel property!"

"Well, I'll be d——!" was all that David Molloy could say.

* * * * *

The next day Cook and Townsend were a very busy firm. No responsible contractor would take over the work, and none could be found who would even faintly promise to get material under four months' time. That would land the completion of the job into February, with the hotel scheduled to be opened December 15th.

* * * * *

Two days afterward suave, polite, obliging Mr. Cook smiled his way into the office of David Molloy, to be told in a quiet, business-like, firm voice that Mr. Molloy's attorney had drawn up a contract, which if Mr. Cook's firm would sign, and further would pay the amount now due with interest and give bond for the prompt payment of the balance, the work would be immediately expedited. Incidentally Mr. Molloy would avail himself of the profit represented by an advance in the market value of material to the amount of eighty-five hundred dollars.

* * * * *

And Cook and Townsend signed!

MODERN COMFORTS COME TO RURAL ITALY.

Municipally owned lighting plants, a town water works, or a modern sewage system were things undreamed of until recently in rural Italy. The primitive customs of their ancestors prevailed in the countryside and the frowning walls which enclosed the smaller hamlets defied invention to thwart tradition. Customs dated from Caesar's day and the peaceful village life might have gone on uninterrupted had not war intervened.

Though the large cities had introduced modern innovations, to make living more comfortable, the smaller hamlets still went on with the picturesque habits to which they were accustomed.

Monday morning saw no bustling housewife, with sleeves rolled up to her elbows, bending over a tub of hot suds. The idea of an electrical washer would have horrified the inhabitants and a mangle probably would have filled them with awe.

Instead the Italian mother gathered her family wash together and carted it in a basket to some running stream or stagnant pool, where in company with her neighbors, she bent over the bank, pounding the clothes against the stones to make them white.

The American Red Cross, for which the Fourth Annual Roll-Call will be held this year from November 11th to November 25th, did much to alleviate hard conditions in the houses of Italy. It introduced modern housekeeping methods through its war-orphanges and through its local distributing stations.

It showed the peasants there were more effective means of lighting their homes than the primitive whale oil lamps. One innovation led to another and now some of the ancient villages are tearing great gaps in their walls to let the world come in. Some progressive communities are even building aqueducts, installing underground sewers, planning for the establishment of electric light plants and investigating the possibilities of the steam laundry. While at present such progressive communities are few, they are constantly increasing in number and soon, it is believed, many of them will have adopted the modern methods first suggested to them by the Red Cross.

When in doubt, ask "Domestic Engineering."

QUESTIONS & ANSWERS

This department is a clearing house for ideas and is open to every reader of "Domestic Engineering." Problems sent in are replied to at the earliest possible moment by "Domestic Engineering," and this department can be made more valuable if readers themselves will help the man who needs assistance. Read the questions and answers. If you have had similar problems, or know from experience how the faults can be remedied, do not hesitate to send in your comment or criticism. It will be some satisfaction to you to know that you have helped a fellow craftsman and a pleasure for us to pass on the data. "Every man owes some of his time to the upbuilding of the profession to which he belongs."

HOW TO PREVENT CHECK VALVE ON CIRCULATION PIPE FROM POUNDING.

Editor, "Domestic Engineering":—Can you give me an answer to the following question through the columns of your valuable paper, which I have enjoyed in the past years?

I have a laundry heater in the basement of my bungalow to heat a 30-gallon boiler, connected to which is a return circulating pipe to insure a continuous flow of hot water to the bath room on the first floor. In the return pipe, about 4 inches from the bottom of the boiler, I have installed a ½-inch upright check valve which hammers every time the bath spigots at the tub are opened. I was afraid it would break the water jacket in the laundry heater, and so I have shut same off.

Now if you think I can remedy this hammering, which I think is caused by the check valve jumping up and down when water is drawn, I will be very much obliged.

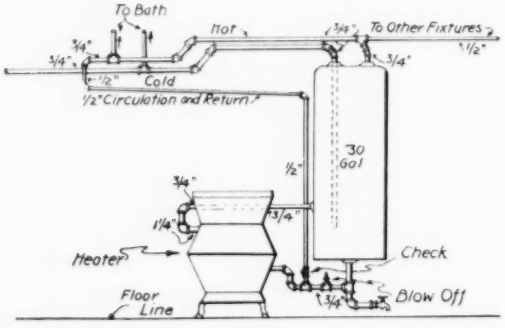


Fig. 1.

Do you think a check valve is necessary on this return circulating pipe? Fig. 1 is a sketch of the layout.

Can you give me a good recipe for breaking in a joint wiping pad?

New Jersey. C. G. R.

We believe the pounding is due to the heavy cast brass flapper of the check valve hanging nearly full open. When a hot faucet is opened at the tub the tendency is for water to flow up through the circulation pipe to the faucet as well as through the hot supply line from the top of boiler.

The back flow starts the instant the faucet is opened. Soon its velocity reaches that point where it closes the check.

The remedy lies in having a very light, springy check that will close instantly and before the back flow velocity is high enough to cause pounding. We think it might be well in this case to remove the present cast brass flapper and insert in its place a flapper clipped from sheet aluminum. Hang it loosely over the present pin.

The aluminum is so light that it should close almost instantly a hot faucet is opened. Being of springy material it should also help cushion any slight shock that may come on the check.

Yes, a check valve is necessary on this circulation line. If you omit it, you will probably find that cold water will be drawn up through the circulation pipe. It will mix with the hot water from top of boiler, thus producing a lukewarm mixture at the faucet.

Take the wiping cloth, or pad as you call it, and rub it well with chalk. This will close the pores of the cloth. Rub the chalk in good. Then grease the cloth over the chalk with mutton tallow. Then go ahead and wipe.

If the cloth is very rough, it may be well to rub it against the side of the fire pot a few times to singe off the loose fibers before chalking and greasing.

HOW TO CONVERT COAL-OIL INTO GAS FOR HEATING PURPOSES.

Editor, "Domestic Engineering": I would like to know the best method of converting coal-oil or distillate into gas for heating purposes. I tried a scheme of my own but does not work satisfactory.

I used a piece of ¾-inch pipe, 15 inches long, and filled same with gravel about the size of a pea. I had a screen at both ends. Contract work is very scarce just now, and I am using a little of my spare time on experiments.

C. R. D.

Omaha.

Coal oil or kerosene is best used with a wick burner or with the so-called blue flame burners.

Correspondent evidently seeks information regarding the use of petroleum or fuel oil. The constituents of petroleum, such as naphtha, gasoline, and kerosene, render it somewhat dangerous to use owing to its low flash point, or the temperature at which it begins to give off inflammable gases. This renders it liable to explosion.

The California crude oil has a considerably lower flash point than the Texas oils, and the Mexican oils in general have a still lower flash point than those of California.

Fuel oil is obtained by the partial distillation of the crude petroleum; that is much of the naphtha, gasoline, etc., has been driven off, they having a greater value for use for purposes other than as a fuel. Fuel oil is said to have a

higher calorific value than crude oil and, owing to its higher flash point, can be more safely used. We mention these points as they bear directly upon the successful use of oil as a fuel.

There have been many types of burners devised and many methods of burning the oil tried out but owing to one cause or another the most of them have been found to be unreliable. The oil is not converted into a gas, as the question of correspondent suggests, but it is vaporized or atomized before introduction to the furnace. The burners used are of three general types; spray burners, through which the oil is atomized by the use of steam or compressed air; vapor burners, in which the oil is converted into a vapor; and mechanical burners which atomize the oil by passing it through a small hole or orifice at high pressure.

In California crude oil is used largely without distillation, and one of the most successful burners used is known as the Jarvis Crude Oil Burner. For ordinary heating boilers, hot air furnaces, etc., a low pressure burning system is used. The oil is passed through the center of the burner in a small pipe and at the nozzle is vaporized by compressed air which passes through a larger pipe surrounding the oil pipe. The air is compressed by a small air pump of the blower type operated by a small electric motor. For larger power installations steam at high pressure is used for vaporizing the oil.

The Peabody Burner—largely used—is a mechanical burner which vaporizes the oil by steam passing through it in much the same manner as the Jarvis burner.

Burners of these types have been found to be more reliable and to give better service than the distillate burners.

HOW MUCH COAL IS NEEDED TO HEAT 260 Sq. Ft. RADIATION?

Editor, "Domestic Engineering": A customer of ours has a leased store in a five-story office building heated by an ordinary low pressure one pipe steam heating system burning soft run of the mine coal. While the fact that it was a heated store had lots to do with our friend considering the lease—he finds now that the owner wants him to share in the expense of the coal that is required to heat this building. (Nothing was written in the lease actually specifying that heat would be furnished but since it was a steam heated building it was naturally supposed that heat would be furnished the tenant.) This store is heated by four direct cast iron steam radiators, as shown on the sketch inclosed, a total of 230 square feet of heating surface, and by two 3-inch steam mains that pass up from floor to ceiling to heat offices above the store.

Now what would be a fair allowance for furnishing heat for this store? How would you suggest a method to figure the amount in terms of "so many tons of r/m soft coal" which they use?

We would appreciate information and your opinion of this proposition.

H. H. C.

Georgia.

The sketch submitted by correspondent we show by Fig. 1 on which we have indicated details not given in the letter. Correspondent advises that in addition to the radiation shown there is 32 lineal feet of 3-inch pipe in the two risers passing through the store. Thirty-two feet of 3-inch pipe has about 29 sq. ft. of surface equal to about 30 sq. ft. of cast iron radiation. This would make the total radiation equivalent to 260 sq. ft.

Estimating fuel requirements from the amount of radiation supplied is a very uncertain procedure as so much depends upon the method of firing the boiler and the attention given the heating apparatus. We may, however, approximate the requirements and determine how much fuel would be required to heat the store by considering the matter on a heat unit basis.

One sq. ft. of radiation when surrounded by still air at a temperature of 70 degrees will give off 240 heat units per hour when low pressure steam is used as the heating agent. There will be available approximately 6,000 heat units per pound of run of mine soft coal burned in an ordinary heating boiler.

260 (sq. ft. of radiation) x 240 equals 62,400 heat units per hour.

62,400 — 6,000 equals 10.4 pounds of coal burned per hour.

24x10.4 equals 249.6 pounds for a 24-hour day.

18x10.4 equals 187.2 pounds for an 18-hour day.

The above is the maximum for zero weather requirements as required in our northern climate. When the average winter temperature of Georgia is considered, and a shorter heating day and higher night temperature, it is probable that the actual requirements will not exceed 4 or 5 tons of soft coal for the heating season. Of course, the expense of attending the heating apparatus is to be considered in making up the estimate of cost.

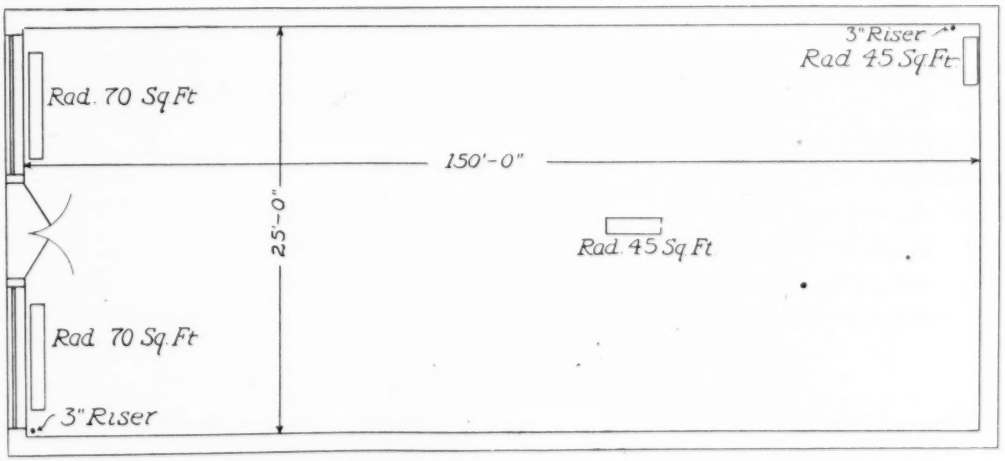


Fig. 1.

PUMPS

How can a farmer resist this appeal?

THE advertisement displayed on the opposite page should get a response from every farmer who reads it. If he has self-respect, how can he endure such conditions on his farm any longer? How can his wife continue to put up with such drudgery?

This advertisement — in this week's Saturday Evening Post—is now in the hands of thousands of farmers of the better class—and their wives—in every part of the country. It is bound to result in a big stimulation to sales of Goulds Autowater System. More prospects than ever will be in the market. Will they come to you?

Right in your own town the demand for the Autowater System is being felt. Inquiries may come to us from farmers who are known personally to you. Must we direct these inquirers elsewhere or are you going to let us send them right to your store? They can't do business with you unless you are a Goulds Dealer.

"Headquarters for Goulds Pumps" is a slogan that has brought big new business to dealers the length and breadth of the land. "Headquarters for the Autowater System" will mean bigger business than ever.

Place your order today

If you are a Goulds Dealer, but haven't an Autowater System on your floor, order one today. If you are not a Goulds Dealer, become one by ordering the Autowater System.

Be prepared to show at least one Autowater System to all inquirers. You will find the first one will go quick. After that you can demonstrate it in the home where it is installed. It will bring you many additional sales.

Order that first Autowater System today—have it on hand while the demand is at its height. We guarantee prompt delivery from our nearest warehouse.

THE GOULDS MANUFACTURING COMPANY

Seneca Falls, New York

GOULDS

GOULDS

THE SATURDAY EVENING POST

September 11, 1920

PUMPS

TRIPLEX · CENTRIFUGAL · ROTARY · DEEP WELL · HAND

She walked 3,808 miles—lugging water

SHE is a farmer's wife. Having only a hand pump at the well, she has to pump, pump—and carry, carry, carry.

She estimates that during her married life she has walked 3,808 miles carrying water. Her husband and her children have walked additional thousands of miles—carrying water.

Next month, however, they will have a Goulds Hi-Speed Autowater System, and then all this drudgery will be over. There will be running water in the bathroom, kitchen, laundry, barn, feed-lot, and garage.

Can't you just feel the sense of luxurious living that will creep into their tired souls and bodies?

The Goulds Hi-Speed Autowater System is driven by an automatically operated electric motor—quiet, self-oiling, economical, complete and compact. It is the ideal system for farms of average size and suburban homes having no access to municipal water supply.

And the Autowater System is only one representative of the complete Goulds Line of farm and rural pumping equipment, which includes irrigation pumps, fire-pressure pumps, large water supply pumps, windmill pumps, spray pumps, deep well pumps, hand pumps, gasoline engine-driven pumps and others.

This branch of Goulds Service has been well known to farmers for seventy years. Goulds Pumps are at work in every industry, in agriculture, in municipalities, in rural homes—all over the world.

THE GOULDS MANUFACTURING COMPANY

Seneca Falls, New York

BOSTON ATLANTA NEW YORK HOUSTON PHILADELPHIA PITTSBURGH CHICAGO DETROIT

Agencies in all principal cities

GOULDS

PUMPS

AMONG THE WHOLESALERS AND MANUFACTURERS

CENTRAL SUPPLY ASSOCIATION'S FALL MEETING.

The Central Supply Association will hold its regular fall meeting at the Hotel Sherman, Chicago, on Wednesday, October 20th, according to official announcement just issued by Secretary Paul Blatchford. The Executive Committee will meet the day before the meeting at the same hotel.

NEW FACTORY ADDITIONS.

The Pioneer Brass Works, Indianapolis, Ind., is erecting a foundry building of brick and steel construction, 150x200 feet, including a molding room, furnace room, core room and grinding room.

The Chicago Nipple Manufacturing Co., 910 West Lake Street, Chicago, has plans under way for the enlargement of its plant.

THE AUGUST TOURNAMENT OF THE NEW ENGLAND METAL PRODUCTS GOLF ASSOCIATION.

W. H. Thayer, G. F. Uhler, W. J. Eddy and G. A. Murphy were the prize winners at the August meeting of the New England Metal Products Golf Association held at the Brae Burn Country Club, near Boston, Mass., on Thursday August 26th. Mr. Thayer won the morning round with a net of 83, while the afternoon match went to Mr. Eddy who turned in an 81. Mr. Uhler's 85 took the second prize in the forenoon and an 82 by Mr. Murphy was second best in the after dinner play.

The scores follow:

Morning Round

	G.	H.	N.		G.	H.	N.
W. H Thayer	89	6	83	W. F. Hubbard	114	20	94
G. F. Uhler	115	30	85	H. L. Doten	109	12	97
H. D. Nickerson	100	14	86	L. W. Smith	114	14	100
C. A. Pastene	102	12	90	C. Glavin	130	30	100
W. F. Stearns	111	18	93	H. W. Thorndike	126	24	102
W. A. Griffith	110	16	94				

Afternoon Round.

	G.	H.	N.		G.	H.	N.
W. J. Eddy	105	24	81	H. L. Doten	103	12	91
G. A. Murphy	86	4	82	C. A. Pastene	103	12	91
H. D. Nickerson	98	14	84	W. A. Griffith	108	16	92
R. E. Sargent	98	12	86	W. F. Hubbard	113	20	93
W. F. Stearns	111	18	93	H. W. Thorndike	117	24	93
W. H. Thayer	94	6	88	C. Glavin	123	30	93
S. B. Reed	102	14	88	L. W. Smith	111	14	97
G. F. Uhler	119	30	89				

The September tournament will be held at the Rhode Island Country Club on a date yet to be decided upon.

JOHN WOOD MFG. CO.'S ANNUAL OUTING.

The John Wood Mfg. Co. of Conshohocken, Pa., is holding its annual outing and basket picnic at Pleasure Park, near Harrisburg, in connection with the Boilermakers' Local No. 569, today, Saturday, September 11th. The big feature of the day will be a baseball game between the "Ruth Glass Works Nine", and the "John Wood Boys", the former being the leader in the Industrial Baseball League.

SAACO EMPLOYES HOLD FIRST ANNUAL OUTING.

August 26th, Sanatoga Park, near Linfield, Pa., on the banks of the Schuylkill river, was the date and place for the first annual outing held by the employes of the Sanitary Company of America. Fine weather prepared the way to a most enjoyable time for the employes of the two plants of the company who came out nearly 100 per cent strong. Owing to the fact that as many visitors as employes were in attendance more than one thousand persons enjoyed the event. Many races were held, but possibly the most enjoyable feature of the day was the baseball game between the East Greenville plant and the Linfield plant, which terminated in a 17-to-6 victory for the Linfield delegation. As a result of this victory a large pennant was presented to the Linfield team as its reward as winner of a series of ball games played between the two plants. In the afternoon the picnickers listened to a most interesting address by William D. Hales, of the Maryland Casualty Co., of Philadelphia. The entertainment committee was composed of the following: Harry R. Trout, William Davis, Samuel Osler, Oswin Geissler and Frank Leighton. This committee, however, was assisted by numerous sub-committees.

THE IRON CITY SANITARY MFG. CO.'S ANNUAL OUTING.

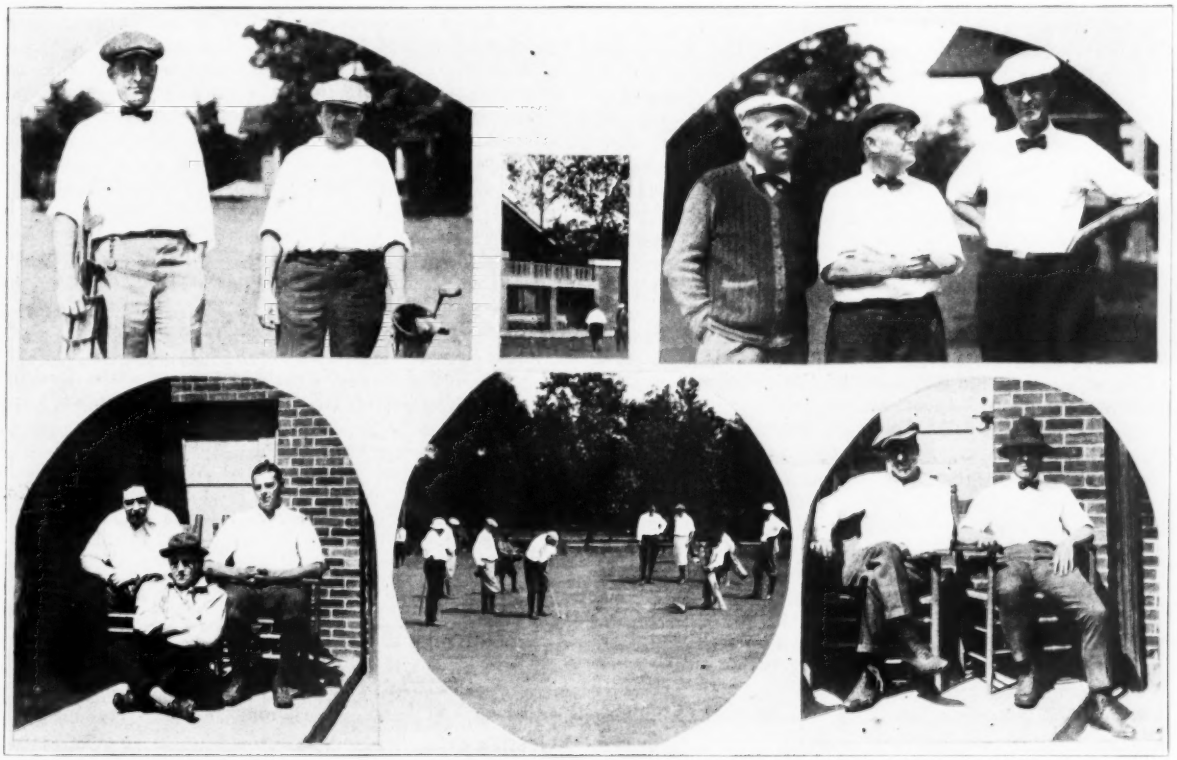
The annual outing of the Iron City Sanitary Manufacturing Co., of Pittsburgh, Pa., for the heads of departments and office force from the company's works at Zelienople, its Pittsburgh office force and invited guests, was held on Saturday, August 21st, at Rosemount Farm, the country home of A. A. Frauenheim, president of the company. This

The Annual Outing of Iron City Sanitary Mfg. Co., of Pittsburgh, Pa., Held on Rosemount Farm.

farm is located on Kittanning Pike, near Sharpsburg. About 150 attended the affair and were entertained throughout the day by an excellent orchestra, and later with an elaborate dinner. John A. Kelly, secretary and treasurer of the company, and C. F. Meyer, representative, acted as masters of ceremonies.

WESTERN TRADE GOLFERS TO PLAY IN MILWAUKEE.

Arrangements have been made for the members of the Western Trade Golf Association to play at the Blue Mound Country Club, Milwaukee, Wis., on Tuesday, September 21st. Captain E. W. Sanborn states that a special car over the North Shore Electric Line will leave the Adams Street station at 8 o'clock a. m., Chicago time, arriving at 9:47 Milwaukee time. This will give the players time to get in the qualifying round and become acquainted with the course before participating in the afternoon events. This advance information is given out so that the members can make arrangements to spend an enjoyable day en route to and in Milwaukee, and it is hoped that a good crowd will be on hand to show Host Sharpe that his invitation is appreciated.



Western Trade Golfers at Riverside on August 31st: Top, A. S. Lindeblad and Otto Deschauer; Bruce Fulton, E. W. Sanborn and J. McDonald. Bottom, Howard Evans, J. Claflin and Frank Crumley (sitting); Putting on the home green; Ben Nelson and Sam Bloom.

CREDITS AND COLLECTIONS.

Frank S. Hanley, of New York City, secretary of the Eastern Supply Association, has just issued a bulletin on "Credits and Collections," containing the following paper by G. A. Fromm, credit manager for the American Radiator Co., New York City, and member of the Eastern Supply Association's credit committee:

"The degree of success of the members of this association depend, in a very large measure, upon the success of their individual customers, and perhaps, as never before, the question of credit will, in these strenuous and unusual times, determine success or failure to many business enterprises.

"In perhaps no other line is the extension of credit so great or liberal when compared with the amount of working capital of our customers, for very often it is found that a plumber or fitter having a working capital of $1,000, can secure a total combined credit of ten or more times that amount, which means that supply houses and manufacturers have so much more invested in his business than he has himself. If it were not for the fact that this method of doing business has been carried on for years, and with a fair measure of success, we would probably say, 'It cannot be done.'

"I wonder how many of us would be willing as individuals to invest $500 or $1,000 in the average plumber's business, especially if we knew that many others had made a similar investment and the combined amount was far in excess of his own investment, and he, as manager, was absolutely free to do as he liked, and if he so chose, could settle accounts or make distribution of returns just as he might choose, equal portions to all or all to one and none to others if he were so inclined? This is good food for thought for there is a great deal of this being done right along.

"The present financial conditions call for the best possible credit administration, for upon it will depend success or failure to many. While I am far from being a pessimist, I, however, feel that, due to the many unusual conditions existing today, the credit and collection manager will have to be alert, conservative, constructive and diplomatic as never before, in order to properly guide the affairs of his own concern as well as of the trade with whom they deal.

"For, as our products are used almost entirely in new and old building construction, our customers will naturally be

affected by the shutting off of loans to builders, contractors and individuals. We have not as yet been seriously affected by this, although this has been in force for sometime, but I believe that its effect will be very pronounced in the coming months, as many of the jobs are nearing completion, and the loans that were expected will not be realized, therefore, resulting in our customer's payments being held up, as he is one of the last one to finish, and he will, therefore, try to shift this unlooked for burden upon our shoulders. I have also found that much work has been done for individuals, so called, 'Good as Gold,' and while that may be true, still many of them are holding up payment because they are short of ready cash, they have stocks, bonds, etc., but on account of the market being way down, they will not at this time sacrifice in order to pay their bills.

"No doubt, all credit men have been, for a long time past, endeavoring to educate their customers to the necessity of modern business methods, in stipulating proper arrangements for payments in all their contracts. etc., but it is surprising how difficult it is to get some of them out of the rut in which they have been for years. No doubt, the only remedy for such, who will not learn, is credit extinction and if administered properly, it will undoubtedly result in being a blessing in disguise for many.

"As the Trade Extension Bureau is arranging to have a number of traveling representatives, I believe they should be well trained in credit matters so as to present this important subject in the proper way in order to have the desired results both for the trade and the concerns who are backing up and financing this educational campaign to make better business men of our customers. It might also be desirable to enlist the services of credit men in various parts of the country to co-operate with these representatives when presenting the work of the Trade Extension Bureau at local and state conventions or meetings of the various plumbers' and steam fitters' organizations. For, without question, the plumber or steam fitter is now more in need of advice regarding credit and collection, than at any previous time."

WHY ORDERS ARE CANCELLED.

Most cancellations of orders are largely due either directly or indirectly to chaotic conditions arising from war times, according to a report on a survey of the manufacturing field made by the Chamber of Commerce of the United States. The percentage reporting that customers have cancelled orders because of failure to recognize the sacredness of contract, and the legal force and responsibility of an order received and accepted in good faith was small.

There is danger, however, the report declares, that unless a definite stand is taken against any tendency to regard cancellation of orders as unimportant, and unless there is cultivation of a general feeling that an order is to be considered more than a mere memorandum, this evil may assume serious proportions.

The investigation of cancellations was made by the Fabricated Production Department of the National Chamber in response to complaints from members that production was being interfered with, so much so, that plants having had sufficient orders to run for months, were curtailing their efforts or shutting down even though production of their product is below normal and stock in the hands of wholesalers and retailers are light. The complaints protested that the sacredness of the sale contract was being disregarded and that the buyer was willing to chance its legal enforcement.

To get at the bottom of the problem, inquiry was sent to 106 leading trade associations to learn the situation. Some of the questions were:

Is your industry being affected at this time by the so-called cancellation evil and to what extent?

State most common reason given for cancellation.

Has, or will your association take any action in this matter? State what.

If your members accept cancellations, under what conditions?

Have your members in times of large production in securing orders, inserted cancellation clauses in order or contract?

Would you co-operate in a general effort to reduce the number of cancellations by proper methods?

In analyzing replies it was found that the responsibility for many cancellations was chargeable in part to the seller as well as to the buyer. Some of the chief reasons for cancellations are as follows: Inability to make prompt delivery; over stock; business declining; revision of production schedule; financial embarrassment. Some replies indicated also that the public will not buy at present prices.

The survey showed that several organizations have created a bureau of contracts, to deal with all claims for cancellation of orders. These bureaus act simply in an advisory way, receiving from the complainant a statement of facts as a basis for investigation, in due time rendering an advisory report, and in some cases endeavoring to secure a settlement if desired.

E. W. McCullough, who made the investigation for the National Chamber will hold a series of conferences with the Credit Co-operation Executive Committee of the National Association of Credit Men in New York, to try to devise, if possible, equitable means for handling cancellations.

NEW CONSTRUCTION WORK.

The following are among the most important recently awarded contracts as reported in "The American Contractor":

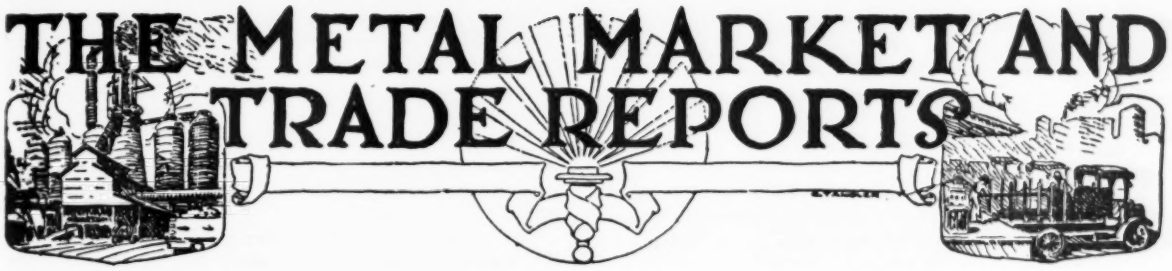
$1,500,000 plant, Trenton, N. J.; Mutual Potteries Co.
$1,000,000 housing, Lewiston, Me.; Androscoggin Mill.
$800,000 warehouse, Baltimore, Md.; Whitaker Paper Co.
$800,000 hotel, Philadelphia, Pa.; James P. Hewitt.
$750,000 building, Philadelphia, Pa.; Curtis Publishing Co.
$700,000 school, Kalamazoo, Mich.; Board of Education.
$500,000 plant, East St. Louis, Ill.; Darling & Co.
$350,000 factory and power plant, Yonkers, N. Y.; Hudson Tire & Rubber Co.
$350,000 sewers, Dayton, O.; Montgomery County.
$300,000 school, Bucyrus, O.; Board of Education.
$300,000 hospital, Ashland, Pa.; Pennsylvania State Hospital of Ashland.
$250,000 Y. M. C. A. building, Ottumwa, Iowa; Ottumwa Y. M. C. A.
$250,000 theater, stores and billiard rooms, Baltimore, Md.; Capitol Theater Co.
$250,000 mausoleum, Saginaw, Mich.; Peninsular Mausoleum Cemetery.
$230,000 building, Oshkosh, Wis.; Diamond Match Co.
$226,000 school, Columbus, O.; Board of Education.
$204,000 school, Columbus, O.; Board of Education.
$200,000 Y. M. C. A. building, Easton, Pa.; Y. M. C. A.
$175,000 theater, LaPorte, Ind.; Blackstone Theater Co.

PERSONAL MENTION.

Francis J. Baker, president of the George H. Tay Co., of San Francisco, Cal., is making an extended visit to his company's sources of supply in the East.

L. J. Brennan, president of Victor Brass Mfg. Co., of Cleveland, and **J. A. Mangan,** president of the Elgin Brass Co., also of Cleveland, left that city on Tuesday, September 7th, for a motor trip through the East. After stopping in New York, they expect to proceed through Boston to Montreal.

THE METAL MARKET AND TRADE REPORTS



Steel and Iron.

Offerings of merchant bars on the basis of from 3 to 3.10 cents in small lots have been coming to the trade during the past week. There is no indication of an easing up of the supply in so far as mills are concerned, but shipments have been more general and stocks have been more widely circulated and put in jobbers' hands more freely, with the result that efforts to move these have made values more attractive. It is noted, however, that there are no offerings at such prices as mentioned for the smaller sized material. It is generally for the larger sizes, such as 2-inch and 3-inch rounds. There is a serious scarcity in small rounds and squares, especially under the ½-inch. Some premiums have been willingly paid for prompt shipment of these smaller sizes.

Rail demand has been without feature during the past week, but there has been sufficient inquiry to show the market to be firmly pegged at base prices. The new bookings for standard section rails for 1920 delivery are not important, but the negotiations are for a much larger tonnage than that reported as closed. The production at the present time in rails is not better than 50 per cent in all sections, and this is above the average for several weeks past. Independent interests continue to quote 3.75 cents base on light rails.

Short tonnage has affected sheet production to some extent, but it is apparent that the market is receiving a much better supply, for sheet quotations are considerably softer, especially from producers, who are offering freely at 7.25 and 7.50 cents black and 8.50 cents galvanized material, and up to 9 cents on the latter. The better car supply and freer semi-finished steel movement have given an impetus to the sheet trade, especially to the producing end, and the larger supply has brought conditions nearer a normal status.

Pig iron producers were never in a stronger position to dominate the market than at this time. The industry, especially from the operators' point of view, is the firmest of all the metals with the situation practically in sellers' hands. Little iron is accumulated and shipments are going forward as rapidly as iron is produced. Consumers are getting their unfilled orders in large quantity with most of them well covered as to their requirements the remainder of the year. Nevertheless, some users are in need of early tonnages, but find extreme difficulty in placing contracts. The shortage of Northern iron is severe and that fact alone, if no other, reflects the hard market tone.

Furnaces are enjoying steady receipts of fuel and raw materials, practically assuring a good rate of production for months ahead. Operators are nearer normal than at any time this year, but most of the pig iron output is sold ahead and being delivered on old standing contracts. Of course, there is some quantity open for new business, but it is so limited that premiums are more the rule than the exception. Every indication points to a further firming of prices, particularly because of the fact that coke prices are holding firm. The demand for iron, while not as persistent as heretofore, is still substantial, especially for steel-making kinds. In the South, foundry iron is very active and urgently wanted. The base market is at a $50 minimum throughout.

Prices for pig iron are quoted as follows:

No. 2X, Philadelphia	$53.76
No. 2 Southern, Birmingham	42.00@44.00
No. 2 Buffalo	50.00
No. 2 Chicago	47.00@48.00
Basic Valley, furnace	49.00@50.00
Bessemer, Pittsburgh	50.46@51.46

Copper.

Although there are as yet no definite signs that a big buying movement is about to start in copper, the opinion prevails that there will be large purchases in the coming week or two by the biggest consumers who have been working off their surplus and are getting into a position where it will be necessary for them not only to replace stocks, but also to cover their future requirements for the rest of the year. Sentiment among producers is considerably better than it has been for many weeks Several of the larger selling agencies are making small sales at 19 cents and a few at 18¾ cents, and this indicates quite clearly that the low-priced metal is being taken out of the market. While some of the smaller dealers are quoting 18½ to 18¾ cents a pound, they admit that they are not anxious to book orders, in expectation of an early upturn. Inquiries with the larger operators have developed satisfactorily and the belief is held that substantial buying will develop from now on.

Tin.

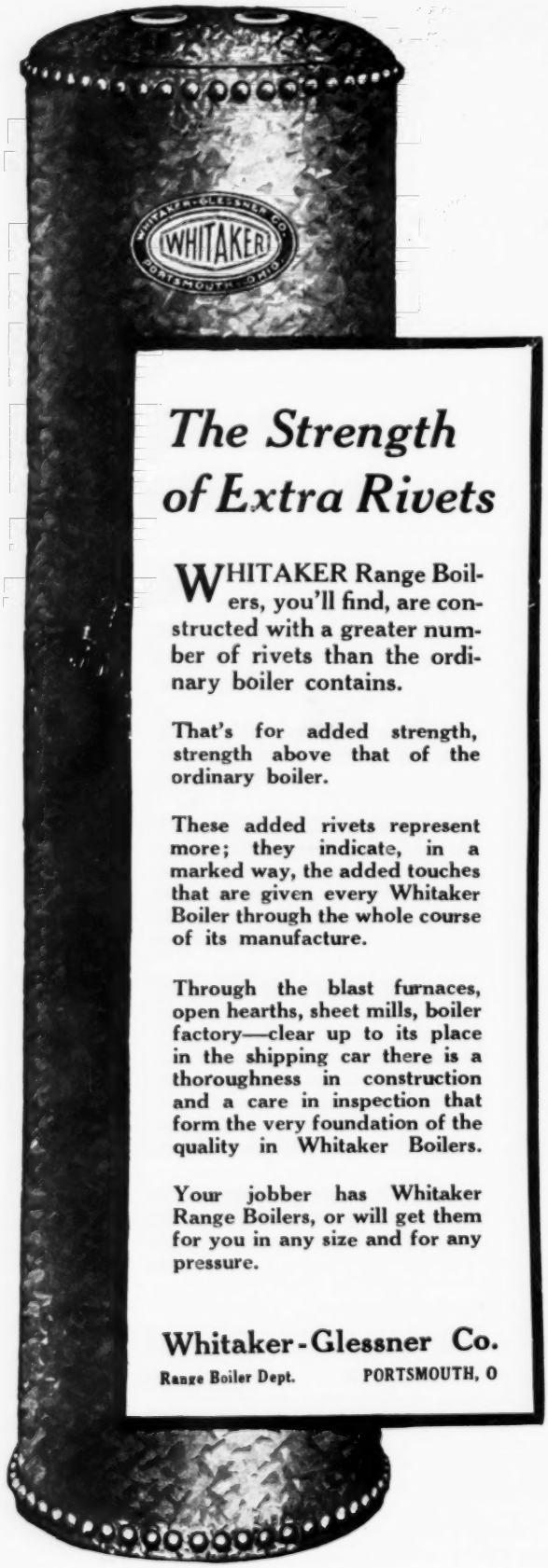
Some surprise and considerable satisfaction was felt in the tin trade at the close of last week, that the market was able to hold steady in the face of a £2 slump in London, coupled with the easy tone shown by Sterling exchange. In some circles this was taken as an indication of independent strength in the domestic market, based on interest shown by buyers and large inquiries coming to sellers. Consumers are likely to come in for substantial tonnages, as it is felt that they have been holding over until after the holiday. Actual closing prices in New York were around 45½ cents for nearby and 46 cents for futures, 1 cent a pound below the market on August 30th and 2 cents under the week previous.

Lead.

Dealers who have had control of large importations from England practically dominate the lead market and have been underselling the leading interests by at least ½ cent a pound. The producers continue to quote 9 cents for early New York delivery and 8¾ cents East St. Louis, but are understood to have been out of the market for deliveries in September and October.

Zinc.

The outstanding feature of the market is the fact that London fell to a new low peak for this year, almost 50 per cent below the high mark the middle of February. Large arrivals from England are expected in New York soon and because of this buyers have refused to place orders in the domestic trade, being offered foreign shipments at 20 to 30 points below the producers' asking prices. The operators are asking 8 cents minimum for East St. Louis spelter and quote 8.25@8.35 cents for New York delivery, but the open market is around 7.90 and 8 cents, respectively.



The Strength of Extra Rivets

WHITAKER Range Boilers, you'll find, are constructed with a greater number of rivets than the ordinary boiler contains.

That's for added strength, strength above that of the ordinary boiler.

These added rivets represent more; they indicate, in a marked way, the added touches that are given every Whitaker Boiler through the whole course of its manufacture.

Through the blast furnaces, open hearths, sheet mills, boiler factory—clear up to its place in the shipping car there is a thoroughness in construction and a care in inspection that form the very foundation of the quality in Whitaker Boilers.

Your jobber has Whitaker Range Boilers, or will get them for you in any size and for any pressure.

Whitaker-Glessner Co.

Range Boiler Dept. PORTSMOUTH, O

Other Metals.

Quotations on other metals in New York are as follows:

Aluminum (in 50-ton lots)	33 cents per lb.
Antimony (Chinese and Japanese)	7½ cents per lb.
Solder, No. 1	34½ cents per lb.

New York Old Metal Market.

The following prices are current for old metals:

	Buying	Selling
Copper, heavy	14¼ to 14½ cents	15¼ cents
Copper, light	13 to 13¼ cents	14¼ cents
Brass, heavy	9 to 9¼ cents	10¼ cents
Brass, light	7¼ to 7½ cents	8½ cents
Brass turnings	8½ to 8¾ cents	9¾ cents
Lead, heavy	7¾ to 8 cents	9 cents
Tea lead	5 to 5¼ cents	6¼ cents
Scrap zinc	6 to 6¼ cents	7¼ cents
Solder joints	11 to 11½ cents	12½ cents
Mixed babbitt	10 to 12 cents	13 cents
Cocks and faucets	11½ to 11¾ cents	12¾ cents
New zinc clippings	7 to 7¼ cents	8¼ cents

Chicago Old Metal Market.

Chicago wholesale dealers' prices are nominally as follows:

Heavy yellow brass	10 to 10½ cents	11½ cents
Brass, light	8¼ to 8½ cents	9½ cents
Brass borings	12¾ to 13¼ cents	14¼ cents
Brass Turnings	8¾ to 9 cents	10 cents
Red brass	14½ to 14¾ cents	15¾ cents
Copper, crucible	15 to 15¼ cents	16¼ cents
Copper, heavy	14¼ to 14½ cents	15½ cents
Copper, light	12¾ to 13 cents	14 cents
Lead, heavy	7¼ to 7½ cents	8½ cents
Tea lead	5¼ to 5½ cents	6½ cents
Zinc	5 to 5¼ cents	6¼ cents
Solder joints	9½ to 10 cents	11 cents
Cast aluminum	24 to 25 cents	26 cents
Block tin pipe	35 to 40 cents	41 cents
Tin foil	30 to 35 cents	36 cents
Mixed babbitt	7½ to 8 cents	9 cents

CONDITIONS UNCHANGED IN THE CHICAGO MARKET.

Chicago, September 9.—Conditions in the plumbing and heating material market have witnessed no change for the better or worse this week. The steel and wrought iron market continues steady with few shipments. A great deal of anxiety is felt over the failure to procure cars for shipment of raw products, which has delayed manufacture, and in turn curtailed shipment to consumers. Valves and fittings are still on the same level, with shipments slow. Buying has fallen off somewhat during the past week. The enameled ware and radiation markets do not show much improvement, while boilers are making a somewhat better showing

TRANSPORTATION CONDITIONS IMPROVED IN NEW YORK PLUMBING AND HEATING TRADE.

New York, N. Y., September 7.—According to local wholesalers and jobbers of plumbing and heating supplies, transportation conditions have shown a slight improvement during the past week, and it is believed that better times are in sight.

A committee representing the construction interests of New York met with W. H. Truesdale, president of the Lackawanna Railroad, during the week, to lay out a plan to expedite movement of construction materials necessary to complete building projects essential to public welfare.

A standing committee was formed to which applications may be presented to secure shipments of necessary ma-

terials in special cases where ordinary methods have failed. The headquarters of the committee are Room 1605, 29 W. 39th St., and Dr. J. T. Duryea is chairman. It is believed that as a result of the joint action of shippers and carriers, material for housing will be greatly expedited. The meeting was held at the suggestion of the Senate Committee on Reconstruction.

There is no doubt that the authorities are at last fully awake to the dangers of the housing shortage situation, and disposed to go to any length to bring about a substantial improvement. The seriousness of the crisis has been brought out forcibly by statistics of the building bureau of the State Industrial Commission just made public.

The figures show that during the summer months there has been a steady decline in building, which is supposed to be most active at this time of the year. During July the estimated value of building work authorized in the ten first and second class cities of the state was $24,560,000—a decrease of 14 per cent from June, and 48 per cent from April. Moreover, the bulk of the building that is being done, the report says, is for industrial plants rather than for dwellings.

New York City is shown to have been more seriously affected than any of the up-state cities. In July the building in New York totalled only $18,815,000 as against $41,521,000 last April.

In the Washington Heights section of New York City alone, a comparatively small but thickly populated area in the upper part of Manhattan, 10,000 families have been ordered to vacate their apartments by September 1st, it is said, by profiteering landlords who wish to exact higher rentals from new tenants. These people are absolutely unable to find new homes.

The opinion is being expressed in some quarters that the calling of a special session of the Legislature by the Governor to cope with the housing crisis is making conditions worse rather than better. These critics claim that many builders are marking time in order to find out what the outcome of this special session will be. Governor Smith, however, has great confidence in the amount of relief that is to be expected when the Legislature convenes, and predicts that a big building boom will follow the action of the legislative body.

The Governor has lined up with those who believe that the State and Municipal Governments should go into the business of building houses, and will use all his influence on the Legislature to bring about the passage of legislation giving New York City the power to go into municipal housing construction.

Taking an aggressive part in the conference held at the City Hall by the Joint Legislative Committee on Housing, this week, Governor Smith told the conference that the Legislature, in the interest of public health and public welfare, might well delegate its police power and its police authority to any of its municipalities during the crisis. He took sharp issue with the representatives of real estate interests, present at the conference, who opposed the proposition of municipal housing on the grounds that the costs would be greater than if construction were put in the hands of private individuals or firms.

"Domestic Engineering" Fills the Bill.

Editor "Domestic Engineering":—In the first place, let me state that I never subscribed for a magazine that I enjoy so thoroughly as I do "Domestic Engineering." It sure fills the bill and every plumber and heating engineer should read it. Wishing you continued success and prosperity, I am,

Yours very truly,

F. J. Wallheisier,
Shelbyville, Tenn.

SIMCO
STEEL WATER HEATER
Coal, Gas or Oil Fired

A double-shell water heater, having two-inch water space between the shells. Electrically welded. Brass plugs, registering with the ends of each tube, are located in the outer shell, giving ready access to tubes for cleaning and repairs. Any tube can be replaced without disturbing another. Handholes are provided for clean out purposes.

Made up complete ready for installation. Tested at 175 lbs. pressure for 100 lbs. working pressure.

The SIMCO Heater occupies less floor space than a cast iron construction for equal service. It is adaptable for a number of uses.

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PRODUCTS

are extremely simple and practical in design. The fundamental principle is to save the workman's time and make a substantial, satisfactory job.

THE UNIVERSAL STRAP HANGER

shown at top can be adjusted instantly. Only two sizes needed to be carried in stock. A strong hanger at a reasonable price. Furnished in any length, both black and galvanized.

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are most convenient to handle. Being interchangeable, any size may be used with another. This saves carrying all the different branches in stock. When up, these are as rigid as a solid plate. You should keep a stock on hand.

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Western Representative—Harry Verbeek Co., 208 N. Wells St., Chicago.
Southern Atlantic States Representative—P. C. Abbott, Richmond, Va.
Eastern Canadian Representative—J. R. Devereux & Co., 358 Beaver Hall Square, Montreal, Quebec.
Western Canadian Agents—A. E. Hinds & Co., Galt Bldg., Winnipeg, Canada.
Pacific Coast Representative—Wm. P. Horn & Co., Rialto Bldg., San Francisco, Calif.
Wm. P. Horn & Co., 301 Kerckhoff Bldg., Los Angeles, Calif.
Wm. P. Horn & Co., 711 Deekum Bldg., Portland, Ore.
Wm. P. Horn & Co., 1105 L. C. Smith Bldg., Seattle, Wash.

Illinois

Chicago and Vicinity.

H. P. Reger & Co., 5514 Lake Park Avenue, have been awarded the contract to install plumbing in the remodeled section of a two-story bank building at 7 North Clark Street.

Brady & Co., 120 North May Street, have secured the heating contract on the $150,000, two-story factory building which is to be erected at 910-22 West Washington Street, for Ed. Katzinger.

Jones & Jacoby, 426 Plymouth Court, has the plumbing contract, and the F. W. Lamb Co., 24 East Kinzie Street, was awarded the heating contract on the two-story $70,000 factory which is to be built for the M. B. Austin Co. at 108-16 North Desplaines Street.

P. K. Clayton, 1949 North Western Avenue, has been awarded the plumbing contract on the Diamond Cab Co.'s garage building at 1553-57 Fullerton Avenue, now being remodeled at a cost of $30,000.

William Lees, 548 West Washington Street, will install heating and ventilating systems in the $150,000 two-story top addition to the Oliver Typewriter Co.'s office building at 150 North Dearborn Street.

E. J. Claffey Co., 350 North Clark Street, has the heating and ventilating contract on the $100,000, three-story office building which is to be erected at 839-43 South Wabash Avenue, for Alfred Cowles.

J. R. Kehm Co., 8 East Austin Avenue, has been awarded the heating contract on the $100,000 office building now under construction for the Chicago, Rock Island R. R. at 6253-6257 South La Salle Street.

Charles H. Ehrlich & Co., 626 West Kinzie Street, will install the heating system, and Kerman Simons, 1332 South Sangamon Street, the plumbing system, in the four-story, $80,000 warehouse, which will soon be erected at 1304-06 South Newberry Avenue for the Glabman Bros. Furniture Co.

S. J. Loula, 2110 South Crawford Avenue, will install the plumbing in the remodeled section of the St. Cassimir's school at Twenty-second and Whipple Streets.

Indiana

Terre Haute.

In the city of Terre Haute, the month of August was one of the dullest months in the line of building construction work in point of money spent and the number of permits issued since January, 1919. The total cost of construction work during the month, according to the monthly report of the building commissioner, was $22,326, which is less than half the amount for the month previous and less than a third of that of the same month a year ago. For the first time in many months the cost of repair work exceeds that of the new work. Thirty-two of the fifty-five permits issued were for new work. The new work amounted to only $6,910, while old work totaled $15,416. Only one permit for the building of a residence was issued and there were eighteen permits for the erection of garages. In July the total cost of construction work was $59,444, of which $30,185 was for new work and $29,255 for repairs. Sixty-seven permits were issued. In the month of August, 1919, the total cost of building construction work was $67,390, of which $46,490 was for new work, and $20,900 for repairs. In that month seventy-five permits were issued.

Gary.

Members of the building trades at Gary say the city's building program for 1920 is going to go far over the $3,000,000 mark. The report for the month of August, showing that $278,376 had been spent for new construction during that period, totals the report for the last eight months at $2,475,633. Construction now in prospect will increase that figure to more than $3,000,000 it is predicted. Sixty-three building permits were issued during August. Of this number fifty were for buildings, the remainder being minor jobs. Three flats and twenty-six residences are included in the former. The cost

of the residences was $119,650, while the cost of the apartment buildings reached $63,000. Fifteen garages were built during the last thirty-one days at an approximate cost of $7,000. Permits for two church basements and one new church building also were issued, entailing a cost of $60,000.

Fort Wayne.

Although it was nearing the end of the summer season, building in Fort Wayne during the month of August was on the increase. During the month a total of 68 permits were issued on an aggregate cost of $290,855. This amount is more than $20,000 in excess of the cost of building operations in Fort Wayne during the month of July. It lacks the same amount of equaling constructions expenditures for the same period of 1919. In July this year 104 permits were issued the costs totaling $271,556. During August of last year 60 permits were issued and the expenditures for building totaled $302,165. Permits were issued in August for the erection of 22 new residences and many others went for the remodeling of homes. The largest number, however, were for the erection of private garages.

Evansville.

Building permits at Evansville for the month of August, 1920, amounted to $791,666, according to the report of the city building commissioner. This was an increase of $683,825 over the same month of 1919. The increase, it was said, was due in a large measure to a permit issued for the erection of a new motion picture theater at Third and Sycamore Streets..

A modern ventilating system has just been installed in the Miller Baking Co.'s plant at Evansville by August P. Schmitt, plumbing and heating contractor at that city. The system washes and dries the air and holds it at an even temperature, heating it in the winter and cooling it, according to requirements, in the summer.

Other Cities in the State.

Bloomington plumbing and heating contractors were never busier than they have been in the last few weeks. Because the city heating plant can no longer be used, many property owners are compelled to install their own heating plants. The biggest job in the business district is the installation of a heating system in the Buskirk-Hill block, the estimated cost of which is about $15,000.

Ten houses, ranging in price from $2,500 to $3,900, are authorized in permits issued this week by the city building commissioner at South Bend to the Whitcomb & Keller Realty Co., of that city. The houses will be erected on property owned by the realty company in various parts of the city.

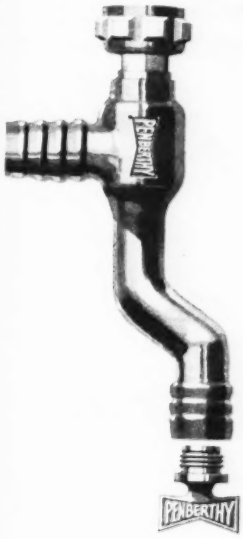
Cleveland and Vicinity.

Activities in the plumbing and heating trades in this district will have assumed the even tenor of their ways before another week has passed. This is the belief of members of the Associated Plumbing Contractors of Cleveland and the Heating and Piping Contractors Cleveland Association, following settlement of the strike of journeymen plumbers and the return to work of both journeymen and steam fitters. The strike in the plumbing trade was settled after efforts of Mayor W. S. Fitzgerald failed. A joint conference at which union members and the contractors were represented, reached an agreement. This is for a wage of $11 a day, with journeymen to furnish their own tools. The strike lasted nearly three months, practically tied up all plumbing operations on old work, and prevented much new building being started. Most of the work during the last two months of the walkout was done by the practical contractors themselves. At the conference that marked the end of the controversy the contractors were represented by Walter Klie, head of the Smith & Oby Co.; Theodore Poplowsky, head of the Poplowsky Plumbing Co.; John Commerford, F. P. Schreiner, while the union was represented by John Coefield, head of the journeymen's national organization and Walter Hensick, Peter Burke and Harry Black, of the local union. Return of the steam fitters followed the settlement of the dispute in the plumbing trade. The steam fitters resumed work at the present wage scale, awaiting settlement later by a mutual conference.

The board of directors of the Ohio State Association of Master Plumbers will meet in Cleveland September 12th.

Penberthy *Washing Machine* **Drainer**

Every Washing Machine Sold Without a Penberthy Drainer Is Incomplete



Penberthy Faucet Adapter

—Converts any smooth faucet into a threaded faucet to which any standard hose can be attached. This Adapter must be used with the Drainer if faucets are not threaded. Easy to attach. Useful for many other purposes. Price, 50c.

YOU know the sales resistance you have encountered when the question of a way to fill and empty the washing machine is brought up by your customer.

No need to let this point trouble you again. The Penberthy Washing Machine Drainer forestalls any chance of future difficulty of this kind.

Sells at retail for $3.50 each. Made of aluminum, lasts a lifetime. Anyone can operate it.

Mrs. Housewife is so tickled when she sees how simple this little device works that she just naturally wants one with her new machine.

And you can go right over your list of early washing machine purchasers and sell every one of them one of these labor saving devices for the home.

There are hundreds of other uses for these handy little drainers. Your customers will discover new ones every day.

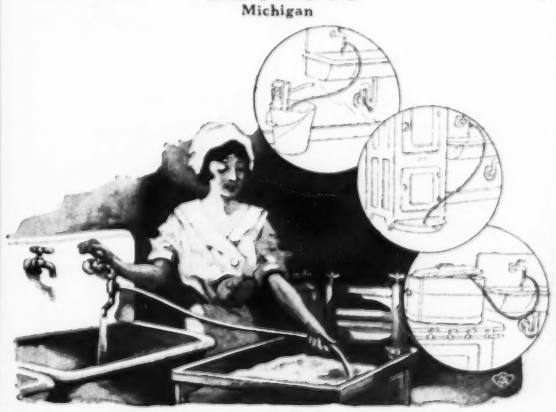
Every live dealer all over America is disposing of quantities of these Washing Machine Drainers. Get in on this real sales opportunity. Write Dept. H today for information.

PENBERTHY INJECTOR COMPANY

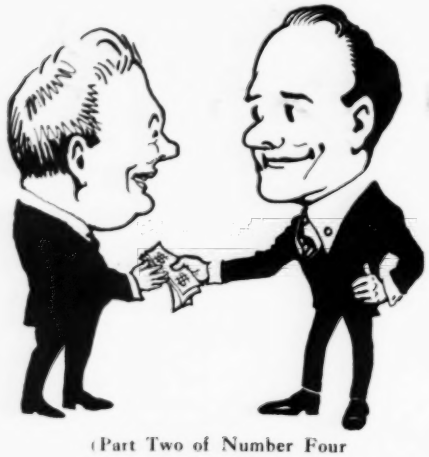
New York Depot
71 Beekman St.

Established 1886
DETROIT
Michigan

Canadian Plant
Windsor, Ontario



It costs you less and pays you more to sell Ruuds



(Part Two of Number Four of the Ruud Selling Series)

Making the Sale

A Ruud Automatic Water Heater Demonstration is generally divided roughly in two parts:

1. How the Ruud operates—its automatic features, its safety control, etc.
2. The everlasting Perfect Hot Water Service that it gives.

There is no better Hot Water Service than Ruud service. It changes instantly every drop of water passing through it to steaming hot water; it means hot water at the turn of a faucet every second of the day or night; it provides an inexhaustible supply; it is entirely free from tank rust or sediment.

Explain the value of such a service in the everyday household operations; in the laundry, the bathroom and the kitchen.

These are the points that have sold over 175,000 Ruud Automatic Water Heaters. Let them sell for you, too.

Ruud Manufacturing Company Pittsburgh

At this meeting plans for the convention of the state association at Toledo will be taken up; discussion of activities to be mapped out for the coming year will be held, and decision to pass upon publication of the new constitution and by-laws will probably be taken. John T. Egan, member of the board from Toledo, is expected to announce the date when the convention will be held, as this to be fixed by the Toledo organization. Members of the board expected to attend include: C. E. Ridenour, president, from Springfield; E. W. Eckhardt, vice-president, Cleveland; Eb Ellen, secretary, Cleveland; Charles W. Wilson, Youngstown; Walter F. Kirn, Akron.

Members of the Associated Plumbing Contractors of Cleveland are arranging for some real recreation, which they believe they are entitled to after three months of turmoil coming out of the strike of journeymen. Be that as it may, the entertainment committee has been ordered to get busy and put on a real live picnic. This they have promised to do, but the time, place and what will happen are being kept under cover. Those responsible for the festivities will be Al Schnitzer, E. H. Benhoff, W. H. Sletzer, I. Oscar, A. J. Penote, A. J. Bingham, Hugh Sullivan and Max Lossman.

A new member of the Associated Plumbing Contractors was enrolled this week by the admission of the Embe Plumbing Co.

A. B. Lewis, for several years a member of the Stone Plumbing Co., has resigned from that firm to take a much needed vacation. He will enter other business upon his return to the city.

New Hampshire

The city of Manchester has just placed contracts for the construction of three new school houses to cost in the aggregate more than $1,300,000. The William N. McKenna Co., of Boston, will do the plumbing in all three buildings. On the Practical Arts High School building the McKenna company's bid was $62,690; on the Franklin Street grammar school the bid was $22,878; and on the West Side High School the figure was $44,566. Three different firms were given the heating contracts. In the Practical Arts High School the heating went to John H. Stevens, of Manchester, at $139,017. The Stone & Underhill Heating & Ventilating Co., of Boston, was given the contract for the Franklin Street school for $57,049. The contract for the West Side High School went to the P. A. Dolan Co., of Boston, at $89,998.

N. M. Bergeron, of Keene, well known locally as a plumber and sheet metal worker, and Fred J. Bergeron, of Lowell, Mass., a welder and automobile repairer, have hired a shop on the corner of Lamson and Federal Streets, Keene, and have established a plumbing, sheet metal and acetylene welding business under the firm name of F. J. and N. M. Bergeron Co.

Massachusetts

The North Shore Master Plumbers' Outing.

One has to attend an outing of the North Shore Association of Master Plumbers to know what a real good time is. Wednesday, September 1st, was the big day this year. Early in the forenoon members of the association and their guests, including salesmen and jobbers, gathered in Town House Square, Salem. There they found a fleet of automobiles furnished by the committee in which to make the run to Centennial Grove, Essex, about ten miles away.

Once at the grove the good time started and it lasted throughout the day. The outing comittee was composed of President "Bart" Driscoll and Secretary "Jim" Trow, with Robert Robertson and R. E. Dockham in charge of the sports. The chief event on the sporting program, of course, was the baseball game between the master plumbers and the salesmen, and it was a game that would compare favorably with a big league contest. It ended with a 2 to 1 score in favor of the plumbers. Perley Kelly and "Bobbie" Robertson were the battery for the plumbers and Barstow and Ahearn for the sales-

men. Hits were not frequent and few players saw first base except from a distance.

Other sporting features included discus throwing and quoit pitching, in both of which much rivalry was shown, making it difficult to determine just who were the winners. There were no "wall flowers," virtually every one taking part. Between times the participants refreshed themselves from a bowl containing a cooling drink, which in itself was a feature of the outing well worth the price of a ticket.

The dinner was another feature of the day. It was a combination lobster and chicken dinner, served at the hotel, and it too was something to be remembered and talked about for days to come.

An indication that every one of the fifty or more persons present enjoyed himself was shown at the regular meeting of the North Shore Association a few days later, it was suggested that the outing committee be made a permanent committee and have charge of all future gatherings of the kind.

Lynn and Vicinity.

R. T. Pender, of Lynn, was the lowest bidder for installing a new heating system in the central police station in that city, the bids for which were opened recently. The Pender bid was $6,477; Reardon Bros.' Co.'s bid $6,822, and M. A. Dame & Son Co.'s $7,075.

A new heating plant is soon to be installed in the school of St. Joseph's Roman Catholic Church at Pittsfield at an estimated cost of $8,000.

Other Cities in the State.

The contract for renewing the heating plant at the Kenwood School in Lowell has been placed with the Hobson & Lawler Co., of that city, at $4,300.

The Wood, Brightman Co., of New Bedford, was the only bidder recently in answer to an advertisement of the city of New Bedford for proposals for plumbing installation in proposed new bleachers at the athletic field at Victory Park. The bid was $2,200 with the stipulation that the price was based on immediate acceptance. The firm enclosed a telegram from a manufacturer to the effect that prices on the required articles were to be advanced within a few days. Early in July, when bids were first asked, the Wood, Brightman Co. submitted a bid of $1,961.

Connecticut

The Brass City Plumbing Co., of Bridgeport, is having extensive changes made in a building on North Main Street, to be used by the company as a storehouse.

H. C. Wolfel Co., of New Britain has recently installed a new heating plant in the Odd Fellows Building in that city.

The Vandercock Co., of Simsbury, has the contract for plumbing and heating in a residence, being erected in that town for C. Edson Curtis, which is to cost $40,000.

The Barlow Bros. Co., of Waterbury, has the contract for plumbing in a garage on East Main Street, Waterbury, for Maltby Bros. The building will cost about $35,000.

The contract for plumbing and heating in a house on Gaffney Place, Waterbury, for J. L. Gaffney, has been placed with M. J. Daly & Sons, of that city.

Pennsylvania

Pittsburgh and Vicinity.

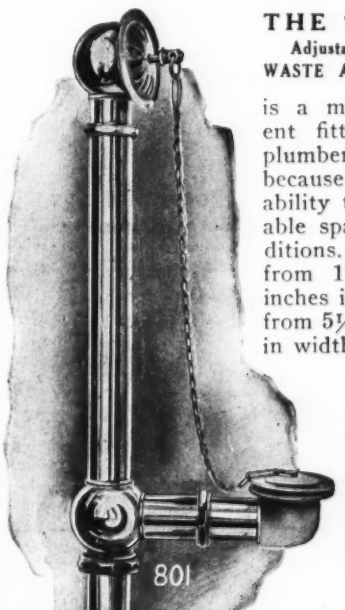
The Iron City Heating Co. has been awarded the contracts to install the heating system in the convent building that is to be erected on Third Avenue in Carnegie, and in the garage building being erected on Bluff Street. Leo B. Buerkle Co. was awarded the plumbing contract on the latter structure.

The State Department of Health at Harrisburg has issued permits for the improvement of the sewerage systems in the towns of Punxsutawney, Sharon, Butler, New Castle and Oil City. Permission was also granted to Pittsburgh to extend its lateral sewer system.

FROST QUALITY.

BRASS GOODS FOR PLUMBERS

A standard line of high grade brass supplies, including everything the plumber requires in Traps, Waste and Overflows, Tank and Seat Trimmings, Lavatory and Tank Supply Pipes and Fittings, Sanitary Vent Fittings, etc.



THE "FEMCO"
Adjustable Connected
WASTE AND OVERFLOW

is a most convenient fitting for the plumber to install because of its adaptability to suit available space and conditions. Adjustable from 12½ to 14¾ inches in height and from 5½ to 7 inches in width.

"FEMCO" Products are accurately made of highest grade brass in neat, pleasing designs. Finest nickel-plated, durable finish.

You make no mistake when you specify and install "FEMCO" BRASS GOODS.

Order from your jobber

Frost Manufacturing Company

Kenosha, Wisconsin

ONE-WEEK DELIVERY
ON
Chicago Condensation Pumps and Receivers

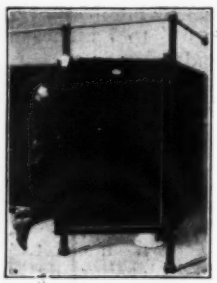
The safest and surest Condensation Pump on the market. Catalog 25 will explain why.

The ENTIRE HEATING PLANT depends on the pump, therefore select the safest. The Chicago Condensation Pump is the first self-contained unit placed on the market and is still in the lead.

CHICAGO PUMP CO.
2322 WOLFRAM ST.

Manufacturers of
BILGE PUMPS, SEWAGE EJECTORS, TURBINE HOUSE CIRCULATING PUMPS

Chicago Condensation Pump and Receiver.



SANYMETAL Gravity Roller Hinges play a big part in SANYMETAL endurance. Our catalog describes them.

Sanymetal
TOILET PARTITIONS
TRADE MARK U S. REG.

You can recommend SANYMETAL to your customers with confidence. Year after year it has stood up under the smashing treatment toilet doors and partitions receive everywhere.

Catalog on request.

The R. F. Carpenter Mfg. Co.
978-984 East 64th St.
Boston **Cleveland, Ohio** New York

West View Borough is taking bids for the installation of approximately eleven hundred feet of sewer pipe and for manholes, etc.

Architect Charles Geisler is taking bids on the store and apartment building that is to be erected in Pittsburgh, on Warrington Avenue, for Theodore Lau.

Architect C. P. Hitchens, First National Bank Bldg., has prepared plans for the grade school that will soon be built in East Pittsburgh.

The Lehigh Plumbing & Heating Co., Allentown, has secured the contract to install heating in a bakery building erected in that city for the V. G. Baking Co.

A new Y. M. C. A. building, to cost about $200,000, is to be erected in Easton. The general contract has already been awarded.

Other Cities in the State.

Krause & Co., 66 Broadway, Milton, are to install plumbing and heating systems in the 65 homes that are now under construction in that city for the Milton Housing Co. Plumbing and heating in three other residences are also being installed by this firm.

W. C. Bortz has recently opened a plumbing and heating establishment at 1323 Chew Street, Allentown. Mr. Bortz is installing the plumbing and heating systems in the bungalow being erected for H. P. Moore.

R. N. Wagner & Son, Twenty-ninth and Main Streets, Penbrook, have secured the contracts to install plumbing and heating in ten houses that are to be erected in that city for S. H. Sherk, and also plumbing in two homes for C. N. Lyter.

E. J. McCabe, Lock Haven, will install the plumbing in twelve residences that are to be erected in that city.

New York

New York City and Vicinity.

The local plumbing and heating industry has had a strike on its hands during the past week, but only the smaller contractors have been affected. Officials of the Manhattan, Bronx, and Brooklyn Master Plumbers' Associations say that none of their members is concerned in the dispute, as they do not employ helpers who belong to Local 32 of the Amalgamated Metal Workers of America, the labor organization which called the strike. The latter is not affiliated with the American Federation of Labor, which does not recognize its existence.

Acting concurrently with the moving van men, three thousand of whom went out on Wednesday, and the painters, decorators, and paper-hangers, seven thousand of whom went on strike at the same time, two thousand plumbers laid down their tools and announced their intention of doing no more work until their demands were met.

Prominent among these demands is the recognition of May 1, "International Labor Day," as an additional holiday. The striking plumbers also exact from their employers a forty-four hour week, an agreement on the strictest possible curtailment of over-time work, and another agreement making employers responsible for the loss of plumbers' tools left in the shops after the working day.

Employers are also, according to the terms proposed by the men, to give notice each night as to whether there will be work on the following day, and, failing to do so, are to pay half a day's wages to employees for whom there is no work.

According to officials of the Amalgamated Metal Workers only 500 of the striking plumbers were members of Local 32 of that organization at the time the strike was called, the rest of the two thousand strikers holding no union cards at all. All of them have joined the union, however, since the walk-out.

The strike leaders say that they expect to win in short order, as the employers are showing a strong inclination to "listen to reason." More than four hundred of the contractors have already agreed to the strikers' terms, they declare, and at least one thousand of the plumbers are expected to return to work this week.

At a meeting of the United Labor Council, held on Friday evening, delegates to seven building trades affiliated with the striking plumbers discussed the advisability of going out in sympathy. These included members of the International Carpenters' Union and members of the United Electrical Work-

ers' Union, who at first were very much in favor of taking action to assist the plumbers in obtaining their demands.

The danger of a further delay in building construction work in this field, however, was averted by a decision to defer all strike action indefinitely. D. D. Glenday, general secretary of the International Carpenters' Union, pointed out to those who attended the United Labor Council meeting that it would not be necessary for any more men to go out.

"The painters and plumbers are getting what they want," he said, "and a settlement of their strikes is only a matter of a few days. Seventy-five per cent of the employers, we understand, have already agreed to the demands, so our comrades need no help from us."

None of the unions which met at the United Labor Council's Hall is affiliated with the American Federation of Labor.

"The situation is just this," said an official of the Manhattan Association of Master Plumbers to a representative of "Domestic Engineering." "There are about four thousand plumbing and heating contractors in New York who have been employing non-union labor, or helpers whose cards are not recognized by the A. F. of L. It is these little contractors who are now in trouble, but as none of them has ever made any attempt to qualify for membership in our association we are not interested in their present difficulties with their help.

"Naturally we are watching the situation with some interest, but it is not giving us any concern. Our own men are loyal and contented, so far as we can learn, and there is no danger of the strike spreading to their ranks. On the contrary, our workers are not at all in sympathy with the bunch who are now on strike.'

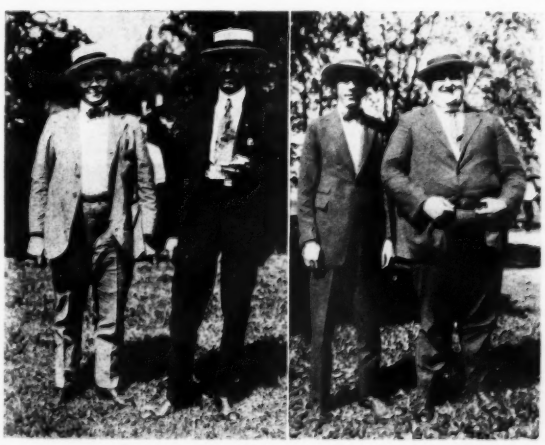
New Jersey

Asbury Park Master Plumbers Hold Annual Outing.

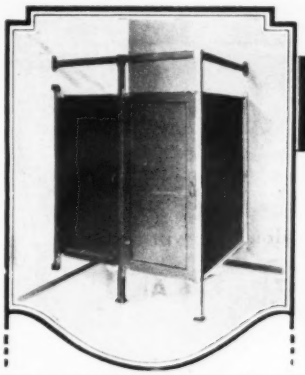
When baseball team meets baseball team there is usually a hard fought battle looked forward to. Well, so it was at the annual outing of the Asbury Park Master Plumbers' Association, held at Green Gables, Pleasure Bay, on Wednesday, September 1st. The master plumbers carried away all the laurels for the day, both for getting "pinched" for speeding along the highways, and for ball playing. The dotted line experts were sent down to defeat by the plumbers by a score of 14 to 7. The battle resulted in several casualties, chief among which were the cuts and bruises inflected on the plumbers' catcher and the salesmen's first baseman, who were taken out of the game as a result. First Baseman Cleary for the salesmen, received a split finger when he made a sensational catch of a fly ball, and Havens, the plumbers' catcher, was incapacitated when second baseman Fisk, of the salesmen, fell on him. Bob Stewart, of the plumbers' team, exhibited his batting prowess when he bingled out a circuit drive in the first inning.

The line-up for the ball game was as follows.

Plumbers.		Order Takers.
Bob Stewart	p	W. Abernethy
H. W. Havens	c	Wm. J. Hepburn
Paul Broome	1b	Charles Cleary



President W. A. Snudden and Secretary Walter Grub, of the New Jersey Master Plumbers' Association; Wm. J. Hepburn, of Seashore Supply Co., Atlantic City, and S. Fisk, of New York City.



THE trend in modern building is logically toward a combination of Economical Permanence, Attractiveness and Sanitation. This has been realized in many of the most carefully planned school, store, office and factory buildings by equipping them with

WEISTEEL
COMPARTMENTS

These compartments of rigid steel construction for toilets, shower and dressing rooms, embody all the salient features of Permanence, Economy, Sanitation and Attractive Appearance. They are quickly and easily placed and have no projecting bolts or screws.

A booklet, giving full information, will be promptly mailed on responsible request.

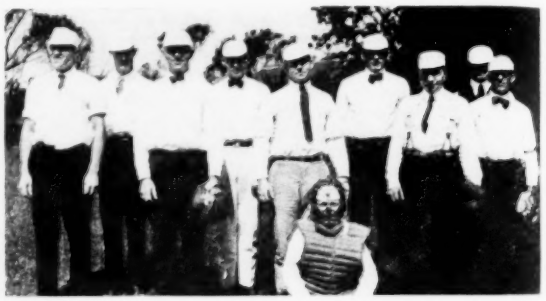
HENRY WEIS MANUFACTURING CO.
Factory and General Sales Office ATCHISON, KANSAS
CHICAGO 155 Peoples Gas Bldg. NEW YORK 103 Park Ave. BOSTON 24 Milk St. CLEVELAND 360 Leader-News Bldg.

KENNEDY
—the valves you can depend on to stay right

You can't tell so very much about a valve merely from the outside. The way a valve stands up in service is what shows up its metal and its mettle. And the test of service—the hardest possible—proves the thorough going merit of Kennedy Valves. Try them on your next job—you'll find a size and type on our stock shelves ready for every standard service. The new Kennedy catalog will help you make a selection. Send for it.

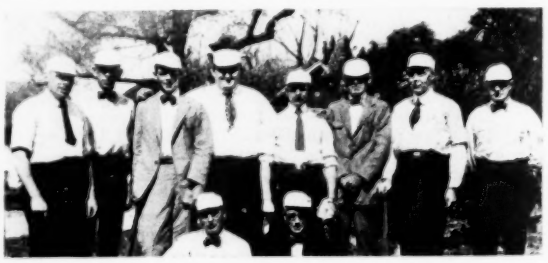
The Kennedy Valve Mfg. Co.
Elmira, N. Y.
95 John Street, New York
47 India St., Boston
23-25 Minna St., San Francisco
204-8 N. Jefferson St., Chicago
Sales Offices: Philadelphia, Salt Lake City, Seattle, Portland, Ore.; El Paso, Winnipeg, Kansas City.

Harry Walton	2b	S. Fisk
Chas. Lovenman	3b	W. Kroit
S. H. Crowell	ss	A. M. Griffens
Ernest Stanch	lf	John Connors
Harry Height	rf	C. A. White
Irwin Height	cf	George Kitson



The Asbury Park Master Plumbers' Base Ball Team.

With the ending of the ball game there was immediately inaugurated another sport. This sport did not take piace on the fields nor under the trees, but, instead, was held on the veranda of the Green Gables, and not with balls and bats nor for prizes, —nothing but delicious clams baked in excellent style. Everybody relished the meal, as could readily be seen when adjournment was started. An excellent orchestra furnished music during the dinner. The rest of the afternoon was spent in joyous recreation. With the falling of dusk the picnickers started



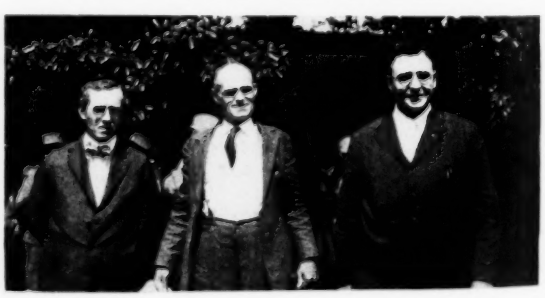
The Order Takers' Team at Asbury Park Master Plumbers' Outing.

to wend their way to "Home, Sweet Home," leaving behind only the grounds, but carrying with them that feeling of success for which the Asbury Park Association has always been noted.

The entertainment committee consisted of Chairman Andrew T. Van Cleve, William H. Brighton and Harry J. O'Brien.

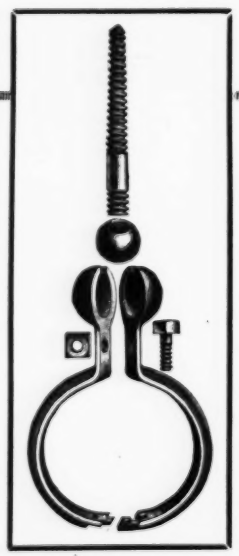
Among members of the supply fraternity present were:

H. S. Bonner and B. J. Newell, of Trenton; D. J. McIntyre, James W. Farrell, John T. Stuart, William Robson, W. E. Russell, and George E. Kitson, all of Philadelphia; J. Leroy Wilson, Dayton; Joseph W. O'Loughlin and Raymond M. Bloom, both of Trenton; William J. Hepburn and Charles A. White, Atlantic City; S. Fisk, A. M. Griffen, Joseph G. Smith, Joseph Gruenwald, Vincent Fitzpatrick, John A. Connors, all of New York City; F. A. Webb, Wilmington; F. M. Brennan and Otto Bernz of Newark; Thomas J. Berkstresser and Charles Rosencrans, of Long Beach and Albert R. Heap, of Camden.



The Entertainment Committee at Asbury Park Master Plumbers' Outing: Harry J. O'Brien, Chairman, Andrew T. Van Cleve and William H. Brighton.

Hanna "Ball Joint" Pipe Hanger



Strongest Made Saves Time and Labor

Constructed of the best and heaviest material. Malleable iron.
Can swing in any direction.
Pipe can be raised or lowered without removing hanger.
Write for "Our Silent Salesman"

THE PENN ENGINEERING CO.
PHILADELPHIA, PA.

California

San Francisco and Vicinity.

Building operations throughout the city are maintaining an even balance. The buildings planned for the near future are expected to keep the monthly totals above past averages. Plans for large building enterprises down town and in the wholesale sections and for the smaller apartments in the western section, Mission, and other districts are under way.

Figures for plumbing and heating for a two-story and basement reinforced concrete apartment house and store building are being taken by Architect P. Righetti. It will be erected on the south side of Turk Street, west of Leavenworth

Eaton & Smith were awarded the contract by the Southern Pacific Co. for the grading, concrete curbs, vitrified sewer pipes, culvert pipes, brick storm water inlets, manholes and asphaltic concrete pavement on Townsend Street, between Fourth and Eighth Streets.

The Foundation Co. is building a two-story concrete office building with concrete lavatory on East Twelfth Street and Fiftieth Avenue for the Coast Tire & Rubber Co. The cost of the lavatory is estimated at $6,000.

The plumbing contract for the new Burlingame School has been awarded to J. Grimes.

Los Angeles and Vicinity.

E. W. Crowell, 744 San Pedro Street, submitted the lowest bid at $7,575 for the plumbing in the new brick gymnasium building on the Franklin High School site.

Charles A. Gibbs Plumbing Co., 4429 South Park Avenue, has been awarded the contracts to install plumbing in residences for M. Gearhart, 937 Westchester Place; Nellie Lininger, 5432 Sierra Vista Avenue and F. Reutlers, 351 Fifty-Sixth Street.

J. M. Finkling, 4904 Third Avenue, will install the plumbing in new residences for C. H. Thompson, F. E. Good, Marie Healy, M. Grover, H. C. Olger, H. A. Holland and F. M. Aller.

The R. L. Hinckley Co., 1105 Highland Avenue, has been awarded the plumbing and heating contracts on six new residences.

J. Hokom, 4312 Moneta Avenue, has recently been awarded contracts for installing plumbing in fifteen residences.

F. S. Hannaford, 218 Colorado Boulevard, has the contract to install plumbing in three residences that are to be erected in this city.

Campbell & Ward, 2718 West Seventh Street, have been awarded the following contracts: Residence of G. Cain; residence of J. B. Solomon; residence of W. E. Gage; residence of H. H. Belden and the residence of W. J. Keugel.

H. B. Johnson, 5208 Moneta Avenue, has been awarded the contract to install the plumbing in the three residences that are to be erected for W. E. Verder, at 403-411 North Hobast Boulevard.

Swinnerton Bros., 109 East Broadway, will install the plumbing in the following: Store, 214 Court Street; three residences, 3811 Clinton Street; 607 North Hover Street, and 948 Beatrice Street, and in a restraunt at 110 North Main Street.

J. R. Mathews, 1206 South Ardmore Boulevard, has plumbing contracts on a residence at 1528 North Harvard Boulevard; a store, 6554 Hollywood Boulevard, and the new residence of Mrs. Ella Squires, at 947 South Oxford Avenue.

William Auburn, 4916 Van Ness Avenue, will install the plumbing in the residences of Henry Danger, M. L. Shultz, G. T. Greenwood, Otto Lefevre, Virginia Greenwall and a residence at 1332 North Mariposa Avenue.

The Thos. Haverty Co., 316 East Eighth Street, has been awarded the following contracts for plumbing: Residences at 1306 West Forty-sixth Street, 919 West Fiftieth Place, 1752 West Forty-first Drive, 2706 East Seventh Street, the Paris Store, 609-611 South Broadway, and the residence of Andrew Busear, at 1639 West Twelfth Street.

J. Hokom, 4312 Moneta Avenue, has the contract to install the plumbing in the two residences to be built for E. E. Paramore; a residence for E. M. Chapman; a flat building at 1514 Formosa Street, and a new residence at 5927 Chula Vista Way.

The R. L. Hinckley Co., 1105 Highland Avenue, has been awarded the following plumbing contracts: Four new resi-

"CAPITOL"
Radiator Valves

are as good as they look. Once on the job, they are "there to stay."

Every "Capitol" Valve tested to 125 pounds, hydraulic pressure and carefully inspected at factory.

The "Capitol" Line Includes

J. D. Steam Radiator Valves.
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Globe Valves, Pop Valves.
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Water, Pressure, Altitude and Vacuum Gauges.

Write for complete catalog.

Capitol Brass Works
(Established 1899) Detroit, Michigan

2 Important
members of the *Ampinco*
package of *Tank Trimmings*

You will like the simplicity of the *Ampinco Lever*. As for the *Ampinco Valve*, there is no stronger argument in its favor than the fact that more and more plumbers are using it each week. Many are replacing their customers' old type valves with the *Ampinco*.

For new installations you will find the *Ampinco package of Tank Trimmings* the handiest thing out. Every part you need to connect up your shell is at hand. And every part will fit because you have a package of

Standardized Fittings

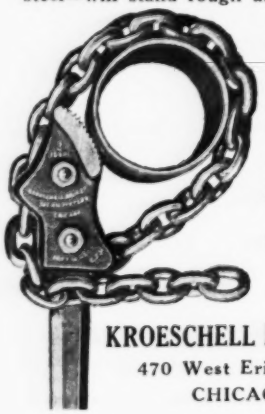
Send for a copy of the new Ampinco Plumbers Brass Specialties Catalogue.

The AMERICAN PIN CO.
WATERBURY, CONN.
PLUMBING GOODS DEPARTMENT.

GRIPS THEM ALL

HERE is a tool that is practically three wrenches in one.

The IDEAL CHAIN WRENCH grips pipe, fittings and flanges—anything—and holds like a vise. Use it in shop or on the job. Jaws can be attached to any handle. Built of best tool steel—will stand rough usage.



Our latest improvement is the Ideal Flange Attachment. Can be used on either side of flange. Quickly adjusted.

You should have the IDEAL. It saves time and labor.

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CHICAGO

Ideal Flange Attachment

For all clamping purposes use Williams' Drop-Forged Clamps. Ask for booklet, at your dealers.

J. H. Williams & Co.

"The Drop-Forging People"
17 Richards Street, Brooklyn
17 Vulcan Street, Buffalo
1017 West 120th Street, Chicago

dences for W. W. Garlaer, on Stanley Avenue; two new residences for G. J. Williams; a store building, 5201 Hollywood Boulevard; an office building, 6756 Hollywood Boulevard; a residence at 1826 Garfield Place; a residence at 1822 North Wilton Place; a residence at 1023 North Ridgewood Place, and a residence at 1024 De Longpre Avenue.

Lohman Bros., 132 South Spring Street, will install the plumbing in the new store building, being erected by P. Wilson at 701-715 South Figueroa Street.

W. B. Brown has been awarded the plumbing contract on the residence to be erected on Darlington Avenue.

Harry Knauff has secured the contract for the heating of the Murdock Storage and Transfer Building.

Manella Construction Co. will lay the sewer pipe in Augustine Street.

At an open forum meeting of the Credit Men's Association held at the Chatham Hotel recently the opinion was freely expressed that there would be a renewal of recently cancelled orders along all lines due to shortages, and that the business outlook for the winter is all that can be expected.

W. P. McArthur, J. W. Hellman Building, has been awarded the plumbing contract at $2,947 and the heating contract at $4,365 for the new high school building in the course of erection at Moorpark, Ventura County.

E. W. Crowell, 744 South San Pedro Street, will install the plumbing in new residences for G. N. Brook, 2817 West Avenue and M. C. Wheeler at 1403 San Pedro Street.

Munger & Munger, of Pasadena, submitted the lowest bid at $6,736 for installing plumbing in the basement of the Jane Addams Building of the Pasadena High School.

Other Cities in the State.

Engineers have been busy this week locating the connections for the sewers and water mains for the half million dollar studios of the Golden Gate Cinema Studios Corporation which are to be built at San Mateo. It is planned to have 18 motion picture companies working at the studios before the end of the year. Bids have not yet been advertised for.

One hundred and fifty copies are being printed of specifications for the pumping unit, first unit of the filtration plant which Sacramento is planning to build. The erection of a filtration plant in the capital city depends upon what bids are received for the first unit of the plant.

A pipe line, five blocks in length, is to be laid for the Greco Canning Co., San Jose, Cal.; from its vineyards to the plant formerly occupied by the Fredericksbury Brewery. This line is to carry grape juice to the great vats in the brewery building.

Planning to utilize a partly abandoned irrigation ditch to carry the drainage water to Snake River, the residents of Yuba City, Sutter County, are asking the organization of a drainage distict between Pennington and Live Oak. Twenty thousand people have signed the petition.

The City Trustees of Martinez, Contra Costa County, have rejected the bid of Geary & Sons for constructing a sewer in Howard Street, from Ferry to Court Streets.

The Long Beach Plumbing Co. submitted bids of $2,778 and $2,990 respectively for the plumbing in the Carroll Park and Atlantic Avenue School buildings at Long Beach, Cal., and the Sanitary Plumbing Co., of Long Beach, sent bids of $3,287.50 and $3,115, respectively. The bids were taken under advisement.

F. F. Studer, of San Jose, has been awarded the contract to install a heating system in the addition of the west wing of the high school, at a cost of $5,169.60.

J. A. Freitas, 2811 E. Tenth Street, Oakland has been awarded the plumbing contracts on the two-story frame and plaster church building to be erected on Twenty-seventh and West Streets, Oakland, for the St. Augustus Church.

C. E. Grey, a contracting plumber, of Lamanda Park, has purchased a new building at Nina Street and Rose Avenue, and is now moving his office and shop into the new quarters.

Plans have been drawn for the installation of a new plumbing system and shower baths in the girls' physical education department of the Pasadena High School, and contracts are expected to be let this week. The job will be a rush one. The successful bidder being required to complete the work within a month.

The general contract has been let for the new high school auditorium and gymnasium to be erected at Maricopa. The plumbing contract will be let shortly. This will include 20 private showers and dressing rooms and a plunge 32 by 42 ft.

S. Hill & Son, of Santa Anna, were the successful bidders for the plumbing on the new Fullerton High School building. The heating contract was awarded to the Hoagland-Lakin Co., of Los Angeles. The total cost of the building will be in the neighborhood of $200,000.

The contract for the heating plant in connection with the fire proctection system in the plant of the Fruit Growers Supply Co., at Susanville, has been awarded to F. Savage, of Reno.

F. L. Gibblo has the contract for the new gymnasium of the Maricopa High School. The plunge will be 32 by 42 ft. Water from the plunge will be pumped into a tank for watering the lawn. Between the gymnasium and the plunge, which will be at the north end, will be a large dressing room containing twenty private showers and dressing rooms. The district voted $35,000 for the new structure, which will be 52 ft. wide and will stand between the high school and the grammar school.

Plans for the handsome ten-room residence for the L. S. Shannon estate at Fresno call for a lot of high class plumbing, including tubs, showers, and pressure water system. There will also be a private electric lighting plant. The cost of the structure is estimated at $15,000.

Plans are now under way for the construction of the contemplated swimming pool at Glendale. Arthur G. Lindley announced that the fund for the construction of the pool has been subscribed.

Segregated bids on the heating, plumbing, etc., for the new high school buildings at Dinuba will be received until September 21st. The plans are with J. Reno Clotfelter. The forms of bids are with Trowitt Shields, Fresno.

Washington

Seattle and Vicinity.

Hellenthal Plumbing & Heating Co., 90 University Street, has the contracts to install plumbing and heating systems in the New Liberty Theatre, Menatchee; Tokary Theatre, Raymond; Roesch Motor Car Co.'s Building, Seattle; Seattle Yacht Club, Fahey-Brockman Building, Greater Motors Co.'s Building, The Liberty Court Apartments, Seattle, and the heating and ventilating in the new armory building that is to be erected at Everett, Wash.

Wenzler & Ward, 2705 First Avenue, have secured the contracts for the installation of heating in the Pacific Construction Engineering Plant, in Seattle, the plumbing contract on the Gulwosen-Grei Co.'s plant and the Deisil plant, both being erected in Seattle, and the plumbing, heating and ventilating contract on the St. George Catholic School.

Seattle Heating & Plumbing Co., 606½ Stewart Street, will install plumbing and heating systems in the Sangert-Aronson Candy Mfg. Co.'s new building, the Cedar Garage Building, the Overland Garage Building, Four Films Exchange Building, and the Rosa Freed Apartments. The plumbing system in the Emanual Lutheran Church and Rhodes Building will also be installed by this concern.

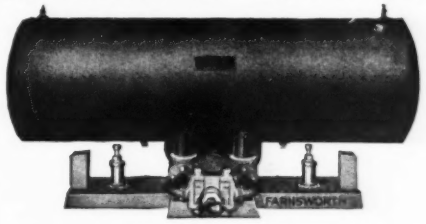
Eckart Plumbing & Heating Co., 1614 Third Avenue, has been awarded the plumbing and heating contract on the new Olympia Hotel. This contarct amounts to $45,000. Plumbing and heating in the National Bank of Commerce, the Rainier Telephone Building, and the homes of W. F. Duthie and J. W. Eddy and the Orthopedic Hospital, will also be installed by this concern, which has just installed 55,000 sq. ft. radiation in Sears-Roebuck Co.'s new building.

The Rustad Heating & Plumbing Co., 322 James Street, was recently awarded contracts to install plumbing and heating systems in the Mutual Trading Co.'s Building at Bremerton, Wash., and in the Roger Sands Building, L. C. Stimson School of Seattle, and the heating in the Sunset Garage.

Ernst & Wolf Co., 311 Olive Street, will install the plumbing in the Washington Arms Apartments and Lincoln High School, and the heating in the Auburn High School at Auburn, Wash. The contracts for the plumbing and heating on the Beardsley Apartments, and the Black Diamond High School, in Black Diamond, Wash., have also been secured by this concern.

The King Plumbing & Heating Co. was the successful bidder on the contract to install plumbing and heating in the 250 houses that are to be erected at the Navy Yards for the United States Housing Corporation and in a 400 room hotel and three apartment buildings that are to be erected

This Farnsworth Duplex Boiler Feeder Saves Coal



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FARNSWORTH CO. Conshohocken, Pa.

Engineers and Manufacturers of Condensation Pumps

C-1003/4 Regular Compression

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Furnished complete with hose and sprinkler.

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Write for prices and details of the complete "S & K Line."

Street & Kent Mfg. Co.

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Eastern Representative:
J. W. Gannon, 30 Church St., New York City.
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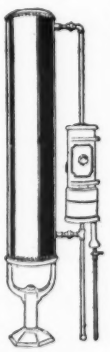

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Ready for immediate delivery in the following sizes:

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SHOWERS
For All Installations

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TRADE MARK.

Let Sirocco Engineering service solve your ventilating, heating and cooling problems. Send for catalog.

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DETROIT, MICHIGAN U.S.A.

CRANE VALVES

in Bremerton, Wash. This concern has also secured the contracts to install plumbing and heating in the Adelphia Apartments, the Richmond Beach and Bellevue Schools, and the heating in the Vanderbilt Garage and Young Apartments, and the plumbing in the McCluskey Apartments and the Highland Park School.

James G. McIntyre, plumbing inspector of Seattle, reports that for the first eight months of 1920 there was issued in Seattle plumbing permits totaling 2,000. He also announces that copies of the new plumbing code have been mailed to the trade.

M. C. Mahon Plumbing & Heating Co., 723 Pine Street, was recently awarded contracts to install the plumbing in the Pine Street Building Co.'s property, St. Luke Hospital, Imperial Laundry, Pure Milk Dairy, Metropolitan Building, Dean Robert's Garage and in two residences being erected in Seattle.

A. Schaefer & Co. are installing the plumbing system in the Seattle Gun Club Building, and is remodeling the plumbing in twelve houses.

John Coughlin Plumbing Co. have been awarded the plumbing and heating contracts on the New York Building, the Arctic Club, Capt. Williamson Store Property, the Chicken Loaf Cafe and in residences for David Rogers and W. H. Barrell.

P. J. Lavan, 1319 Eighth Avenue, has secured the contracts to install the plumbing, heating and power plant equipment for the Kristenson Milk Handling Plant, and the heating in three Seattle public schools, and the plumbing in the University of Washington, Seattle.

Gust Bosch is again back in the plumbing and heating business in Seattle, after having spent three years superintending the installation of plumbing, heating and power plant equipment in ships at the Meacham & Babcock ship yards at Orange, Wash.

Other Cities in the State.

A. B. Bentley, of Edmonds, has the contract to install plumbing in the Edmonds School.

The School Board of North Bend will receive bids shortly for construction of a new grade school in that city. Architects Stephens & Brust, New York Building, Seattle, have prepared plans for the structure which will be two-stories, covering a ground area of 142x95 ft. The cost is estimated at $55,000.

Drs. Taylor and Lacey, Auburn, plan the erection of a hospital in Auburn, at a cost of $50,000. The building will be three-stories high, 70x110 ft.

Frank V. Roth, Pullman, will proceed at once with work on a large apartment house that is to be erected at Pullman. The structure will contain twenty apartments, and will be 100x60 ft., three stories high, of brick construction.

F. C. Grasser was the successful bidder on the contract to install plumbing in the Point Defiance School, which is to be erected in this city.

Oregon

John V. Bennes, architect, Chamber of Commerce Bldg., Portland, has completed plans for the erection of the first and second units of the Girls' Dormitroy Building at Corvallis, as part of the State Agricultural College, and bids will be received shortly. Plans provide for a three-story structure, 90x235 feet, of brick.

Morris H. Whitehouse, architect, Railway Exchange Bldg., Portland, has plans under way for the proposed hotel building to be built at Gearhart. The first unit will be built as soon as the work can be started, and will be a three-story building, costing in excess of $250,000. There will be 110 baths in the structure.

The larger plumbing and heating firms of the city, as near as can be learned, are not complaining about present conditions. Nearly all of the big concerns are keeping well engaged and still continue flying the flag of optimism. The smaller shops, however, are beginning to feel the pinch. Residence construction is not proceeding and is not liable to as long as materials and labor stay at their present price.

Other Cities in the State.

Chas. H. Burggraf, of Albany, has finished plans for a four-room addition and a heating system for the Reedsport school. He has also finished plans for the school at Clatskanie, which will be a concrete building 48 by 100 ft. Steam heating and plumbing will be installed.

The following bids were received by the school board at Portland for the plumbing in the James John High School, Alaska Plumbing & Heating Co., $3,450; Rushlight & Hastorf, $3,420; Sturges & Sturges, $3,551.

Work is being started on the new $500,000 hotel to be built at Lewiston, Idaho, by the Hurley-Mason Company of Portland. The building will be five stories high and have 150 rooms.

Kentucky

Louisville.

That the plumbers of Louisville have had a fair volume of business during the year ending August 31st is shown by the report of the City Building Inspector's office, there having been a total of 9,948 general permits for building, valued at $9,634,-239, as against 8,098 general permits valued at $3,808,205 in 1919. In 1920 there have been 2,482 permits for new buildings, additions and repairs, to cost $7,924,070, as against 1,810 permits for building valued at $2,802,387 last year. In other words there was an increase of nearly $6,000,000 in general permits this year. In this lot were 451 new dwellings, and several big buildings. Work is now under way on the Fehr Cold Storage Plant, Rialto Theater and others, which will amount to over $300,000.

A permit was issued last week for an annex to the 19-story Inter Southern building, to cost $450,000. The Inter-Southern Life Insurance Co., Louisville, is awarding the contracts.

Plans have been prepared for a million dollar addition to the Kentucky Wagon Mfg. Co., a new plant for the Ewald Iron Co., to cost $2,000,000 or more, a new plant for the Dixie Belle Refining Co., a large addition to the Stoll Oil & Refining Co.'s plant; and a million dollar office building and warehouse for the Belknap Hardware & Mfg. Co.

The Louisville Builders' Exchange has announced plans for moving into new quarters on Court Place, having given up the old quarters in the Realty building, which had been occupied for a number of years.

L. J. Rosenfield has secured good contracts for plumbing in two new residences, being erected on Alta Avenue, by William Chreste.

H. N. Bonkofsky has a good plumbing contract for new work and remodeling in the Louisville Cooperage Co.'s plant.

Haller, Zehnder & Redmon Plumbing & Heating Co. is doing some plumbing work for the Baltimore & Ohio R. R. Co., at its terminal at 15th and Rowan streets.

Other Cities in the State.

At Shelbyville, J. D. Wimp has resigned as local manager for the Home Telephone Co., after thirteen years' service, and with A. M. Kuhn has formed a partnership to enter the plumbing business.

Flag Presentation.

The Jersey City Association of Master Plumbers will, on their meeting night, September 16th, be paid a visit by members of the New Jersey State Association's Executive Board, who will present the association with an American flag. The winning of the flag is the result of a lively contest last year between the local associations to secure the most new members. Joseph A. Sprouls, as chairman of the New Jersey State Association Advisory Committee, proffered the flag to the New Jersey Association's Executive Board and feels greatly honored that his local association should be the recipient. The interest was so great that the State Association of Master Plumbers gained 250 new members.

William Schunk, of Schunk Bros., Buffalo, N. Y., spent the week end and Labor Day with friends on the lake shore at Cleveland.

David Hill, Salina, Kans., has been awarded the contract to install plumbing and heating in the new $800,000 Masonic Temple, which is to be erected in that city. This contract amounts to approximately $50,000.

The Smokabate Steel Swinging Arch

Smokabate guarantees to comply with any smoke ordinance in the U. S. A.
Money invested in the SMOKABATE means 15 to 35 per cent saving in fuel consumption.
Our method of firing is but once every five to seven hours.
Keep your customers satisfied by giving them an even temperature of heat.
A system which shows more efficiency with Illinois and Indiana coal than another plant burning Pocahontas.
Burns 90 per cent of the 40 per cent volatile matter in Illinois and Indiana coal.
Actually eliminates soot.
Think these facts over. It means dollars to you.
Every user more than satisfied.
Call, Phone or Write for more Information.
Oh Yes, It pays for itself in less than a firing season.

RECOMMEND THIS PROFIT MAKER

SMOKABATE SERVICE CO.
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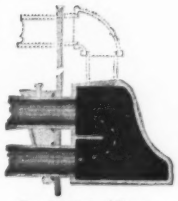
Smith's "CRESCENT" Heater



Sectional View

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Three sizes: 50, 75 and 100 Gallons.

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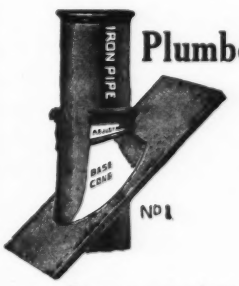
The Hessler Adjustable Plumbers' Roof Flange



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Perfect Heating

The "O-E" Perfect Ball Check Water Seal Union Elbow with Air Vent, is one of the special fittings that helps to make the "O-E" Vapor-Vacuum-Pressure System absolutely perfect.

Dividing wall cast integral with body makes a sure water seal that will not stick. Air vent not only allows all air in radiator to escape freely and quickly, but equalizes pressure on both sides of water seal, preventing water syphoning out.

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884 Third Street
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Against Flooded Basements

Where the Signet Drain is installed there can be no back water.

A perfectly reliable trap that automatically keeps out sewerage, gas and germs.

TRADE MARK SIGNET REG. U.S. PAT. OFF.

Always works. Nothing to get out of order. Brass working parts submerged.

The Signet is clean, sanitary, simple, durable and efficient.

Pat. Dec. 8, 1914

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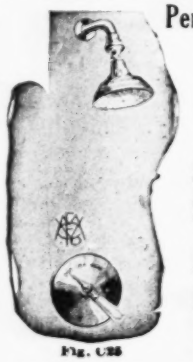
KANSAS CITY, MO.



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with the
MILWAUKEE
Shower Bath

Nickel plated shower head. Concealed mixing valve with china handle and nickel plated dial plate.

Built for service.

Ask your jobber for the Milwaukee Shower Bath.

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Fig. C38 Fig. C40

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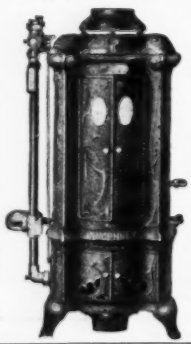
For
Hot Water



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HUMPHREY COMPANY
Div. Ruud Mfg. Co.
Kalamazoo, Michigan

THE PROVINCE OF ONTARIO.

Ottawa.

Some improvement in the local plumbing and heating situation is reported during the past week due to the approach of Fall, necessitating considerable repair work to furnaces and heating systems and to anxiety on the part of the public to complete alterations on dwellings being converted into apartment houses as soon as possible.

Livock & McCall report that jobbing is plentiful and considerable work of this kind is in sight. Materials, however, were scarce and deliveries slow. This applies particularly to pipes and fittings.

J. P. Band stated that there was considerable work in view, though practically all confined to alterations and replacements. Iron pipe was scarce, and it was proving difficult to obtain recess fittings. The outlook for jobbing was good, though work on new buildings was practically at a standstill.

Coldrey & Chapman were experiencing something of a dull spell but expected a rush shortly when residents started returning to the city from the Summer resorts. A large number of houses are being remodeled but there is no new work in sight. Deliveries of materials in general were reported as very slow.

J. R. McLennan reported the situation on the whole as dull with prospects very uncertain.

Hamilton.

The annual picnic of the Journeymen Plumbers & Steamfitters' Union of this district was held on Saturday, August 28th. A large number of the members of this union, together with the invited guests, which included the members of the Contracting Plumbers' Association, journeyed to Grimsby Beach. Two baseball games featured the sports. One game was played between the bosses and men, and won by the former with a score of 11 to 9; and one between the steamfitters and plumbers was won by the fitters, 10 to 6.

H. Morrison has the plumbing work on three new dwellings for J. Dwyer on Ottawa Street North, the remodeling of the plumbing in the apartment house at 111 Herkimer Street, and in the residence on Balsam Avenue for Mr. Hardie.

J. Luxon was the successful bidder on the plumbing work on three cottages being erected on Wood Street, East, for T. W. Jutton.

P. Smith has the plumbing work on two houses being erected for H. Barnes on Leinster Avenue, and two Housing Commission dwellings on Balmoral and Belmont Avenues.

Herbert Barnes has the contract for the installation of plumbing in stores and dwellings being erected on Ottawa Street, North, for Dr. Allison, two dwellings being built on Balmoral Avenue, North, and one on Mayflower Avenue, for the Housing Commission.

P. A. Moore has the plumbing work on the residence for Louis Minden on Proctor Boulevard, and on two houses on Biggar Avenue for S. S. Forbes.

Brantford.

Everyone working, though no big jobs are coming out at present and very few dwellings are starting, yet those under construction will keep the boys busy till snow flies.

Anguish & Whitfield, and T. J. Minnes are installing the heating and plumbing, respectively, on the Expositor extension.

R. H. Ballantyne is completing the plumbing in twelve houses for the Housing Commission on Sheridan and Aylmer Streets.

Anguish & Whitfield have just completed the plumbing and heating installation in the old postoffice which has been remodeled for the Holstein breeders, who have turned it into headquarters.

Plans are being made for a $1,000,000 paper mill and power plant to be erected in Quebec.

COMPARATIVE EFFICIENCY OF VENTED HALF-S TRAPS, AND NON-VENTED, ANTI-SIPHON, NON-SIPHONING OR RE-SEALING TRAPS.

(Continued from Page 545.)

the apparatus used for testing was not an actual plumbing installation, but differed therefrom so completely that it became merely a laboratory apparatus which undoubtedly was capable of determining the relative siphonage resisting qualities of anti-siphon traps as compared with each other but which was not fit to determine the advisability of the use of anti-siphon traps in place of vented ½S traps.

The reports on tests which favored the use of anti-siphon traps were made by Col. Waring, J. Pickering Putnam, and H. J. Luff. All three of these men were patentees of anti-siphon traps.

Tests which formed the basis of reports favoring venting systems were made by Bowditch and Philbrick, Sanitary Engineers of Boston, Mass., S. S. Hellyer, Sanitary Engineer, London, England, Glen Brown, Architect, Washington, D. C., Dr. Chas. F. Chandler, President New York City Board of Health and Professor of Columbia University, and the Building or Health Departments or similar official bodies of the following cities; Chicago, Ill.; Davenport, Ia.; Washington, D. C.; Elmira, N. Y., and Wilkes-Barre, Pa. In addition thereto the Master Plumbers of Boston reported favorably on individual venting.

B. Present Stage of Trap Development.

By means of a questionnaire sent to the chief plumbing inspectors of 185 cities in this country outside of New York City, which were recorded in the "Standard Diary" as having in 1916 an estimated population of over 35,000 inhabitants, information was elicited about the present trap situation in cities, in number 107, having a total population of about 23 million. The total population of the cities to which the questionnaire was sent was about 30 millions, so that the replies to the questionnaire cover 58 per cent of the number of the cities and 77 per cent of their population.

Analyses of the returns show the following facts:

1. In 81 per cent of the number, and in 84 per cent of the population of the cities, unvented anti-siphon traps are not permitted for general use in new buildings.

2. In about 40 per cent of this number and about 24 per cent of this population, anti-siphon traps are not allowed, whether vented or unvented, for general use in new buildings.

3. In about 4 per cent of the number, and in about 4 per cent of the population of the cities from which information is available, are unvented siphon traps permitted for general use, but with decided limitations.

4. In about 17 per cent of the number, and in about 11 per cent of the population of the cities, is general use of unvented anti-siphon traps permitted.

5. In these cities, in which unvented anti-siphon traps are permitted, the maximum allowable distances from the traps to the soil or waste stacks varies from 18 inches to 25 ft.; in the case of Macon, Ga., there is no extreme limit.

6. In not a single city, except New York, is only one trap reported approved to the exclusion of all others.

7. In not a single city is the 1½-inch or 2-inch Geco trap approved by the Board of Standards and Appeals of New York City, reported as approved or in use.

C. Opinions of the Geco Trap.

An actual size blue print of the cross section of the Geco trap was sent by me to a number of the chief plumbing inspectors of various leading cities, together with a letter requesting them to express their opinions on this trap and asking their permission to publish their opinions, which permission was given in all cases except that request was made by a few to withhold their names. Twenty-six replies show that the

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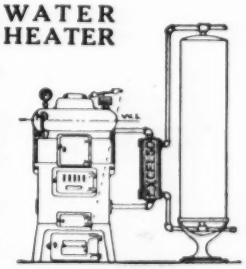

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Fig. 301

officials of only three cities with a total population of only 280,000 are apparently not opposed to the Geco trap without venting; in only two cities, with a total population of 430,000 apparently not opposed to the Geco trap for emergency use without venting; of five cities with a total population of 930,000 not opposed to the general use of the Geco trap with venting; but of 12 cities with a total population of over 8½ millions opposed to the use of the Geco trap whether vented or unvented. It is of especial interest to note that among the latter are Washington, Chicago, St. Louis, Philadelphia, and Cleveland, and that moreover Rochester and Schenectady, both of which do permit certain forms of anti-siphon traps are opposed to the Geco trap with or without venting; so is also Cincinnati which permits a limited use of anti-siphon traps. Springfield, Mass., which has tested and approved numerous anti-siphon traps without vents is also opposed to the Geco trap without venting.

In addition to these opnions Mr. T. N. Thomson, of Scranton, Pa., finds several flaws in the trap; Professor Chandler opposes its introduction. My own opinion of the trap per se, without any reference to the question of whether it should be vented or unvented, is that, while it has a pleasing exterior and probably not an excessive depth of seal, it violates provisions 90, 100, and 112 of the New York City Plumbing rules and regulations as adopted by the Superintendents of Buildings, effective April 23, 1912, and as amended by the Board of Standards and Appeals, July 5, 1917, and December 27, 1918, effective January 27, 1919, in that it has a lower partition upon which the trap depends for its seal under certain conditions, and in that it has three restrictions in its diameters or cross-section areas, namely, at the top of the inlet tube, at the bottom of the inlet tube, and at the outlet tube.

I consider that the trap offers great resistance to the flow of liquids and thereby greater opportunity for fouling than a 1½-inch S trap. I consider that its rough interior surfaces will stimulate fouling, and that under high rates of flow there will be circular eddies within the trap tending to wrap hair, lint, and other fibrous materials into balls and to reject them together with other suspended substances into the contracted inlet.

I estimate from the ratio of the wetted areas to the trap contents that during the same rest periods and with water containing the same percentage of grease the thickness of grease congealed on the walls of the 1½-inch Geco trap will be twice as thick as that deposited on the walls of the 1½-inch P trap. Since the velocity of flow through the P trap is about 8 times as great as it is through the enlarged body of the Geco trap there exists a considerably greater tendency for the passing water to tear away any grease collected on the walls of the P trap, while it remains attached to the walls of the the Geco trap.

D. Tests of Vented ½S and of Anti-Siphon Traps in New York City.

1. Board of Standards and Appeals Tests of Geco Traps at 30 City Hall Place.

These tests were made for your Association informally in the afternoon of August 13, 1919, and were witnessed by me. They were similar to those performed at Rochester, N. Y., Springfield and Holyoke, Mass., and like these, were entirely devoid of any semblance to conditions prevailing in actual plumbing practice. As laboratory tests they would answer perhaps to compare the siphonage resisting power of anti-siphon traps; but as a means of determining their reliability in actual plumbing practice these tests were a farce as witnessed by me; no attempt was made to gauge the rate of flow; the flushing periods were not even timed by a watch.

The use of a 1½-inch waste pipe is against the rules of the plumbing code which prescribes not less than a 2-inch pipe. The pipe was closed at the top and open at the bottom with-

out connection to the sewer and thereby created conditions essentially different from those encountered in a plumbing system. It is inconceivable to the trained engineer that the greatest city in the world should have attempted to determine the reliability of an apparatus which is intended to protect mankind against foul air produced from the decomposition of its own waste products by means of a testing apparatus erected on a fire escape entirely disconnected from a plumbing system completely different from actual plumbing practice, not even complying with the plumbing code, and operated in a manner similar to that used by children playing with toys.

2 Board of Standards and Appeals in the Hallenbeck Building.

This test was made on May 1, 1919. It was not witnessed by members of your Association nor by myself. A description of it was given in the June 4, 1919, issue of the "American Architect" by Mr. Edward F. Hammel, formerly engineer of the board. I inspected the plumbing in the building on the following day and have photographs made of certain portions of it. These tests were incompetent in the following respects:

a. The only Geco trap under test for siphonage by water flushing through its waste stack was placed on the first floor where practically no siphonic action occurs, but where the atmospheric pressure within the stack is almost always positive, resulting in blowing the trap rather than siphoning it.

b. The Geco traps claimed to have been placed on the waste pipes from flush tanks on the upper floors could not have been siphoned because they would refill from the trickle when the flush tank was practically empty.

c. The plumbing system was fitted in numerous places with unvented ½S basin traps which would be immediately siphoned by flushes into the stack and would then act as vents, promptly relieving any vacuum which might have existed in the upper reaches of the stack.

d. The connection from the flush tanks to the lead bends were made by putty joints which are subject to air leakages.

My opinion is, therefore, that these tests made by the Board of Standards and Appeals at the Hallenbeck Building showed a complete lack of appreciation on the part of those responsible for them of the fundamental essentials necessary for such tests.

3. New York City Master Plumbers' Association Tests at 366 West Broadway.

a. 4-inch Stack.

These tests were comparative tests betwen 10 different types of unvented anti-siphon traps and the vented ½S trap. The anti-siphon traps held from about 4 to 6 times as much water as the ½S trap and their cross sectional area is about 2 to 5 times as great. Both of these qualities increase the tendency of fouling materially.

The traps were tested by flushing from a roof tank into the 4-inch stack, at the rates of 50, 100, 150, and 300 gallons per minute. They were also tested under varying conditions of soil stack openings above the roof, that is, 4 inches, $1\frac{5}{16}$ inches, 1 inch, and $\frac{5}{16}$ inch. During these tests the Geco trap seal was broken completely 6 times; the U. S. Housing Corporation trap seal 9 times; the ½S vented trap seal only once, and that under the most severe conditions purposely imposed to determine the limit of resistance of the vented ½S trap. The Geco trap seal was destroyed with 150 gallons per minute flushting rate and a soil pipe opening of $1\frac{5}{16}$ inches while the U. S. Housing Corporation trap seal yielded completely under the still less severe condition of a 4-inch stack opening and 100 gallons per minute flushing rate. Under these same conditions the vented ½S trap retained 1¾-inch seal. Other anti-siphon traps behaved similarly to the Geco and U. S. Housing Corporation trap. The flushing rate, 150 gallons per minute, represents the simultaneous dis-

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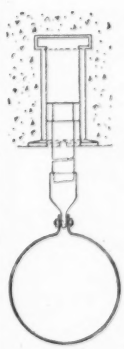

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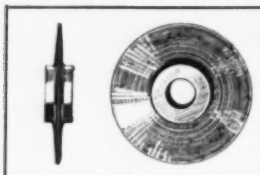

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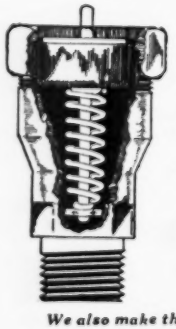

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charge rate of only 2 siphon-jet or siphon-action water closets, supplied with the usual type of flush valves. The decrease in diameter of a 4-inch soil pipe to an opening 1⅞ inches above the roof may reasonably be expected after extended cold weather periods. It must be borne in mind also that the traps tested were thoroughly clean and would probably have been siphoned much more easily had they been fouled by usage. All plumbing work, including fixture traps, should posssess, similar to all engineering construction, a factor of safety. There is no factor of safety in the Geco trap. Since the standard fixture trap the country over has the ½S vented trap no other trap can be offered in substitution successfully which does not have at least as strong siphonage resisting power as the standard which it is intended to replace. The seal of the Geco trap exceeds that of the ½S trap tested by about 90 per cent. For a comparative test a ½S trap of equal seal to the Geco trap should have been used. No reason exists why the ½S trap should not have a 4¼-inch seal instead of a 2¼-inch seal. Under such conditions its strength of withstanding siphonage would have been greatly increased.

Calculations and graphic determinations were made to determine the percentage of seal loss from each trap in order to compare the siphonage resisting qualities of the various traps, including the ½S trap inch for inch of water seal. These graphic illustrations are striking and convincing proof of the inherent weakness of the anti-siphon traps as compared to the inherent strength of the vented ½S trap.

Tests of the atmospheric pressures within the 4-inch soil pipe stack due to the plumbing fixture discharges indicated variations of from 30 to 40 ounces positively to about an equal amount negative, that is total variations of from 4 to 5 pounds at different points of the stack. It seems impossible that any anti-siphon trap no matter how well designed could possibly adapt itself with its small water column to any conditions within such wide limits, without the use of special and effective means for furnishing or removing air as required by the variations of the atmospheric pressures within the plumbing system. There is no doubt but that traps can be constructed of sufficient size to accomplish this result, but they would have to be so out of proportion that they would be small cesspools.

b. 3-Inch Stacks.

The traps connected to this stack were tested to determine the minimum rate of flush required to siphon them without any decrease in the size of the stack opening. It was found that the Geco trap seal was completely broken by a flushing rate of 76 gallons per minute with a total discharge of 53 gallons from a barrel; or it could be broken completely by three 5-second flushes with an average flushing rate of 111 gallons per minute.

The Geco trap seal was also destroyed entirely by discharging 35 gallons of water from the bath tub on the floor above through a 2-inch trapped waste pipe into the 3-inch stack. This discharge was at the rate (average) of 75 gallons per minute.

The vented ½S trap was tested under the identical conditions as the Geco trap and other anti-siphon traps, but its seal remained at 2⅛ inches and could not be lowered below this point.

The 3-inch stack was also used to determine the effect of back pressure, if any, on an anti-siphon trap located on the first floor when the bath tub was discharged on the sixth floor. The back pressure was developed to such an extent that it erupted the water from the first floor trap to the ceiling 6 ft. above, covering an area of about 5 ft. in diameter on the floor and leaving the trap seal destroyed. The discharge of sewage atomized in this manner by compressed air into a room is an extremely dangerous occurence, in my opinion more so than the siphonage of a trap. I do not believe that

any anti-siphon trap can be made without mechanical features or without disproportionate size which will effectively withstand such back pressures.

The vented ½S trap exposed to the same conditions of back pressure indicated merely a slight wave action of its seal, losing only about ⅛ inch in depth of seal.

In conclusion I wish to say that any trap tests made on clean traps must always lay due stress on that fact. Nothing has been done so far as I know by other investigators to determine the ratio between the siphonage resisting power of clean anti-siphon traps and of those fouled to such a degree that they are filled with sediment or grease with the exception of a slight passage way. When these are made, a great deal more light will be shed on this subject, but I am satisfied that tests made by you and directed by me with clean anti-siphon traps gave conclusive evidence of their insufficiency and inherent weakness and lack of resiliency to condemn them for general use in high grade plumbing work.

I desire to express my appreciation to all those who co-operated with me in this work so diligently and whole-heartedly, especially to Mr. Jere Murphy, Messrs. John R. and James Hopkin, and Hon. Wm. J. Flynn, and to all of the members of your association who shared in the work.

It would be negligent of me, were I to fail in expressing also my gratitude to those officials of other cities and to those brother engineers, who gave expression to their views, whether in approval or disapproval of the anti-siphon traps, and who so kindly furnished me with replies to my questionnaire, with copies of the cities' plumbing codes, and descriptions of their tests.

It may be that in this report I have applied vigorous language at times to incompetent or unfair tests made by others, but I have done so in the knowledge that our own work has been as nearly correct and above reproach as we knew how to make it.

Respectfully presented,

A. E. Hansen.

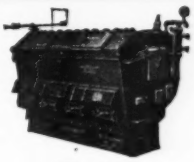
SANITATION AT SUMMER HOTELS.

A recent editorial in "Domestic Engineering" called attention to the insanitary plumbing that is frequently found at summer resorts. Now comes an editorial writer in "American Medicine," who touches on the same subject in the following vein:

"A Maine Department of Health bulletin points out the status of some of its hotels in a manner replete with suggestions. Only 8.7 per cent were rated as excellent, 9.1 per cent very good, 57.7 per cent good, while 17.8 per cent were rated as fair and 6.7 per cent were held to be poor. Sanitary condition was made the index of the rating, and probably the results are as satisfactory as would be found by similar investigations in other state-wide investigations.

"It is interesting to note the character of health regulations that were violated, which included food in kitchen exposed to dirt, dirty refrigerators, food and garbage exposed to flies, kitchen lacking screens, common towel for food-handlers, common drinking-cups, and, in a single instance, bed linen not adequately changed and in another hotel a sewage overflow to the street. The relation of these violations to personal comfort, cleanliness, and health are too obvious to require discussion. The carefulness of the health department in granting certificates is evidenced by the fact that while there were sixty violations filed because of a lack of water analysis, certification demanded this sanitary provision to be complied with.

"In the state under question the two hundred and fifty-three hotels visited had accommonations for more than 24,000 persons and employed 2,200 males and 3,900 females. It was



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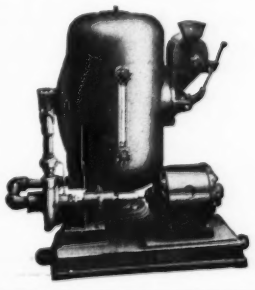

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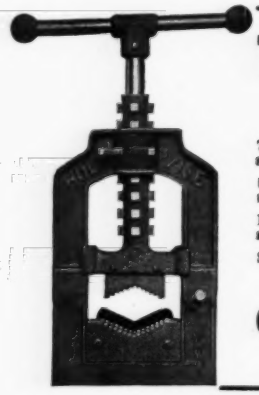

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PITTSBURGH	COLUMBUS	MILWAUKEE	SAN ANTONIO	TORONTO, CAN.
CHICAGO	CANTON	LOUISVILLE	FORT WORTH	HAMILTON, CAN.
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Standard Sanitary Mfg. Co., Pittsburgh

estimated that during 1919 six hundred thousand visitors went to the state and spent from twenty-seven million to thirty million dollars. The importance of the sanitary inspection is further emphasized because only about thirty per cent of the hotels in the state had been inspected, while a study and inspection of camps had scarcely been begun. The necessity for safeguarding the health of summer visitors is apparent in the interest of the strangers within the gates and for the protection of the community in which they are sojourning, as well as for the further protection of the various states to which the tourists will return.

"The long trail of diseases contracted in summer shelters indicates the importance of a more complete system of sanitary inspection and public health supervision than has thus far been attempted. The success of urban communities in moderating the burdens of summer illness demonstrates what may be accomplished through modern public health work and should serve as the basis for further efforts in the prevention of disease in localities boasting a summer colony. Particularly is this true in connection with the wide-spread movement for summer camps for the youthful population. It is highly desirable that such camps be duly inspected and licensed by state health officials before being permitted to open for the season. This phase of health supervision has been seriously neglected, and in consequence unnecessary penalties have been paid by those taking advantage of their recreational offerings. The regulations dealing with the sanitation of food handlers, the inspection of kitchens, water supplies, wastes, and the provision for food should be thoroughly enforced under state direction, and all the more so because of the temporary character of service to vacationists.

"There are undoubtedly many obstacles in the way of securing adequate sanitary inspection, but certainly an industry bringing such large remuneration to the inhabitants of the state should be able to pay a fair tax or license fee covering the special investigatory service required. The additional cost to the individual vacationist would be practically negligible and would be willingly paid for some greater assurance as to the healthfulness of the hotel, camp, or institution to which he had gone for the benefit of rest and recreation."

ANCIENT BATHING CITY HAS NO BATH TUBS NOW.

There was a time in Vrajne, Serbia, when the people included whatever the Serbian word for bath may be in their every-day vocabularies and not infrequently suited the action to the word, but that was hundreds of years ago. Today it is with difficulty that envoys of the American Red Cross at Vrajne are teaching the people the meaning of the word.

And yet of all the towns in Serbia, Vrajne is the one which should be most familiar with baths and bathing, for it is the home of the biggest and oldest Turkish bath establishment in the country. The ancient baths were built in the sixteenth century by the Turks, who then ruled the country. They are housed in an ancient stone structure with a red tile roof.

The water, in the days when the baths were operating, flowed into vats above primitive underground furnaces from a spring whose crystal stream still bubbles through the vaulted cellars of the ancient establishment. The steam from the vats was led to the hot rooms above through channels cut in the solid rock walls of the building.

Today the Vrajne baths are deserted. Bathing is a ritual of which the city's population has known nothing for generations. The youths of the town are learning the art from the Red Cross workers, but the elders still look on the regular ablution of the body as a troublesome superfluity, and the ancient baths of Vrajne may crumble into ruins ere the subterranean steam vats boil and bubble again.

TAKING ADVANTAGE OF OPPORTUNITIES HELPS TO SELL GAS WATER HEATERS.

By F. H. Harris.

It requires some time to build up a successful business in any line, but time alone will not make a firm substantial and prosperous. Many things go to make up success, and one of them is the ability to see and take advantage of opportunities as they present themselves. This applies to the plumbing and heating business, as well as to any other. At least that is the way Charles F. Seifried, of Cleveland, O., looks at it. Mr. Seifried is building up a very good business in plumbing and heating, and during the past year has been particularly successful in selling water heaters both the instantaneous and the storage.

"Not only are wages very high, but plumbers are very hard to get," said Mr. Seifried. "So it is necessary to use plumbers on the kind of work that will bring the largest return for the time expended. It requires very little time to install a water heater, and there is a fair margin of profit in handling them. Some men in the plumbing and heating business seem to think that the percentage allowed for handling these heaters is not large enough to make it profitable, considering the overhead expense of the average shop, but if I can turn over my stock of heaters often enough, my overhead on that part of the business is not going to worry me, for I am not spending much time or money getting the business. I do practically no advertising right now, outside of the show window. What men I have been able to get are kept busy every minute. In fact, I don't believe that there is anybody in the plumbing and heating business in this town that hasn't had all the work that they could do during the past year. The trouble has been in getting men to do it.

"Of course, selling and installing water heaters is a little different than straight plumbing and heating. The heaters have to be sold, but they are not hard to sell to the people that need them. The thing to do is to find the people that need them, and this I generally do by keeping wide awake when I am out around on plumbing and heating jobs, or when I am any other place that seems to hold the possibility of a sale. I have done nothing sensational at all, but I have succeeded in selling quite a few water heaters by simply keeping on the job and taking advantage of every opportunity."

Obituary

James Miller.

James Miller, for many years engaged in the plumbing business at Portland, Me., where his place of business was for decades located at the corner of Federal and Temple Streets, died at his home on Bramhall Street, Portland, on August 30th, aged 78 years. He retired from business some time ago. Mr. Miller was born in Ireland and learned the plumbing trade in his native country, coming to the United States when he was a young man and locating in Portland. He was a 32nd degree mason.

F. W. Dodge Co., New York, reports that building contracts awarded in its territory—States east of the Missouri and north of the Ohio Rivers—during the week ending Aug. 27, amounted to $40,040,550. This compares with $42,768,400 for the week ending Aug. 20.

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Omaha, Neb.

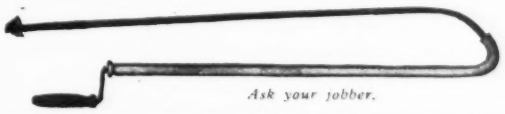
Makers of the famous

"HAUSE" PIPE JOINT CEMENT

In liquid and powder form. Sets like gum. Allows no leaks. And the

"HAUSE" CLOSET AUGER

Made of seamless brass tubes. Indispensable to plumbers.



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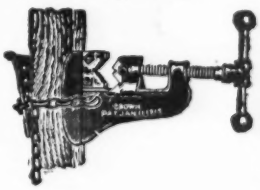
Jaws of best tool steel, hardened and drawn. Will not crush or allow pipe to slip. Made in two sizes. Write for particulars and catalog.



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KEWANEE BOILER COMPANY
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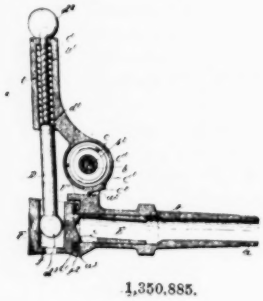
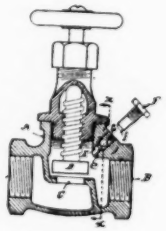
Plumbing Department.

1,350,885. Faucet. Levi L. Rowe, Boston, Mass. In a faucet, a stationary tubular member, a tubular valve adapted to slide longitudinally in said member, said valve having a socket in the outer end thereof, a handle pivotally mounted on said stationary member and comprising a rod one end of which is located in said socket, said rod being adapted to be withdrawn from said socket without disassembling to allow said valve to be removed from said stationary member, and means normally to hold said rod in said socket, substantially as set forth.

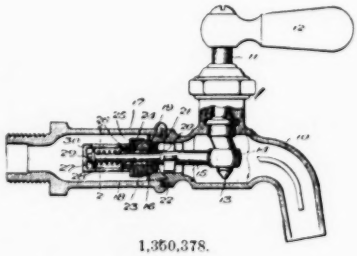


1,350,885.



1,350,362.

1,350,362. Stop and Waste Cock. George W. Decker, Erie, Pa., assignor of one-third to Edward A. Kern and one-third to George A. Friedricks, Erie, Pa. The combination in a stop and waste cock, including a housing having a valve seat opening therein, and a valve adapted to seat thereon, said housing having an axially inclined vent opening therein, and discharge opening at right angles to said vent opening, an internal valve seat shoulder in said vent opening below said discharge opening, and a screw threaded plug adapted to seat on said valve seat opening, substantially as set forth.

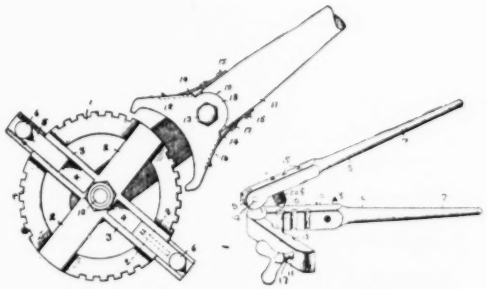


1,350,378.

1,350,378. Fuller Ball. Philip Mueller, Decatur, Ill., assignor to Adolph Mueller, trustee, Decatur, Ill. In combination, a valve stem, a sleeve having a through opening of like diameter throughout its length adapted to receive said stem, means on the stem for limiting forward movement of said sleeve thereon, an elastic valve body upon said sleeve, a flange carried by the sleeve and against which the valve seat end of the elastic valve body engages, a ferrule carried by said sleeve and encircling the inner end of said elastic body, and yieldable means upon said stem and engaging said sleeve for urging said sleeve forward on said stem.

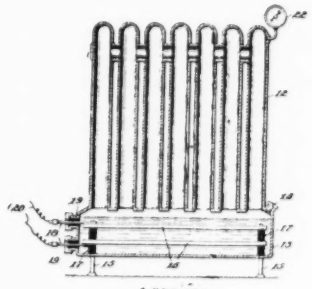
Heating Department.

1,350,519. Pipe Flange Wrench. Joseph M. Pukell, Duluth, Minn. A wrench of the character described comprising a ratchet wheel, radially disposed opposed slots upon the outer face of the wheel, arms mounted in said slots radially adjustable beyond the wheel, pins rigidily fixed adjacent the outer ends of the arms for engagement with an object to be turned, and a handle pivotally mounted centrally upon the opposite side of the wheel carrying means for intermittent engagement with the ratchet wheel for turning it in either direction as desired.



1,350,519 1,350,904.

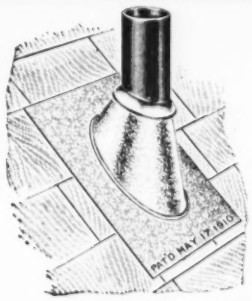
1,350,904. Pipe Flanging Tool. John F. Walters, Battle Creek, Mich. The combination with a tube clamp, of a swinging member movable toward and away from the tube when engaged in the clamp, and a flanging element mounted for self-adjustment in said movable member and detachable therefrom.



1,350,631

1,350,631. Electric Heater. Charles A. Xardell, Utica, N. Y. An electric heater comprising a radiator having a longitudinally extending liquid-tight receptacle at its base and with which receptacle the chambers of the radiator sections communicate, longitudinally extending electrodes or heating members, arranged one above the other, in said receptacle and insulated from each other, and electric communication between which members may be established by liquid in said receptacle, and insulated electric connections from outside of the heater to said members; whereby, when the electric current is turned on the heating operation will proceed until the liquid in said receptacle is caused, by evaporation, to fall below the level of the upper electrode or heating member, when the circuit will be broken, but will be resumed when the liquid is caused, by condensation, to rise to said upper electrode or heating member and thus close the circuit.

Callon Bros., of 24 South Alabama Street, Indianapolis, have been awarded the contract for the installation of all the power piping in the American Hominy Co.'s new syrup plant in Indianapolis. The contract includes the piping in eight big evaporators, new boiler house and a 1,000 k. w. turbine and generator.



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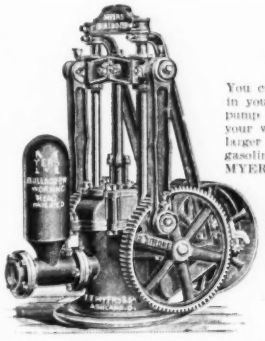

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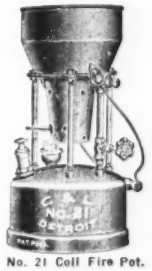

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TREASURY DEPARTMENT, Supervising Architect's Office, Washington, D. C., August 27, 1920.—Sealed proposals will be opened in this office at 3 p. m., September 23, 1920, for furnishing and installing a refrigerating machine in the U. S. Post Office and Court House at New Orleans, La. Specifications may be obtained from the Custodian at New Orleans, La., or at this office, in the discretion of the Supervising Architect. Jas. A. Wetmore, Acting Supervising Architect. 9-4-11

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